The role of inspiring role models in enhancing entrepreneurial intention

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ABSTRACT

Although current research highlights the importance of prior exposure to entrepreneurial role models in the decision to start and pursue entrepreneurial careers, the mechanism through which role models strengthen entrepreneurial intentions has not been fully understood. Against this background, the current paper investigates the influence of role models, entrepreneurial attitudes and entrepreneurial self-efficacies using a sample of 423 University students in Poland. Through a novel fuzzy-set analysis method, three distinct combinations of the variables under study are found to be most effective for strengthening entrepreneurial intention among university students. By implication, these findings task entrepreneurship educators to concurrently foster the three dimensions in the process of nurturing entrepreneurial careers within their student body.

1. Introduction

Policy-makers tend to agree that entrepreneurship is instrumental for economic growth and technological progress (Fellnhofer & Kraus, 2015). Therefore, uncovering what leads people to undertake entrepreneurial activity has been the topic of research for over thirty years. Understanding these mechanisms is important for the creation of a good policy mix that supports start-up activity. Studies concerned with the drivers of entrepreneurial activity tend to focus on the impact of personality traits, family and educational background, gender issues and, finally, entrepreneurial role models (Liñán & Fayolle, 2015). It has been increasingly noticed recently how important prior exposure to role models is for decisions to start or expand entrepreneurial careers. Bosma, Hessels, Schutjens, van Praag, and Verheul (2012) find that over 50% of active entrepreneurs had a role model either before or after starting a company, of which one-third would not have founded their company without such a model. This finding indicates that role models can play a crucial role in the development of entrepreneurial intentions.

Studies on the impact of role models on entrepreneurial intentions date back to the 1980s (e.g., Scherer, Adams, Carley, & Wiebe, 1989). Their theoretical foundations are linked to the social learning theory (Bandura, 1977), which points to the social context of learning, arguing that one way that people learn is by observing the behaviours of others. For this reason, initial works on the link between role models and entrepreneurial intentions have focused on parental role models and, recently, non-family role models have been considered (Bosma et al., 2012). This paper deals with the role models that university students

may be exposed to in different circumstances, e.g., at home, at university or through other encounters with successful entrepreneurs. The focus is on inspiring encounters with entrepreneurs, as recent studies stress that only a positive experience with role models contributes to entrepreneurial intentions and entrepreneurial activity (Mungai & Velamuri, 2011; Zapkau, Schwens, Steinmetz, & Kabst, 2015). Uncovering mechanisms whereby inspiring role models strengthen entrepreneurial intentions can help in improving the effectiveness of leveraging role models for the sake of increasing entrepreneurial activity. This consideration has important implications for both entrepreneurship educators and policy makers (Gibcus, De Kok, Snijders, Smit, & van der Linden, 2012), especially that the presence of role models in public discourse is still insufficient (Radu & Redien-Collot, 2008).

While previous studies aiming to explain the mechanism linking role models with entrepreneurial intentions utilized mediating or moderating variables (BarNir, Watson, & Hutchins, 2011; Chlosta, Patzelt, Klein, & Dormann, 2012), in this paper, we take a different approach by considering the joint contribution of role models combined with other drivers of entrepreneurial intentions, specifically entrepreneurial self-efficacy and attitude towards entrepreneurship. Thus, we focus on the joint effect obtained by combinations of these drivers instead of measuring their independent influence.

The present study offers several contributions to the existing literature on entrepreneurial intentions and the influence of role models. First, it makes a methodological and theoretical contribution by showing how fuzzy-set qualitative comparative analysis (fsQCA,

hereafter) can extend earlier findings reached by other methodological approaches, which are usually regression based, in the context of entrepreneurial intentions' drivers. By applying this novel methodological approach, it is possible to investigate the combined influence of role models, self-efficacy and personal attitude on entrepreneurial intentions, as opposed to their single effects. It is also possible to identify alternative "configural" causal paths of these factors leading to the development of entrepreneurial intentions. Such alternative paths are generally exhibited by contrarian cases, which are not always reflected by the regression-based analysis (Woodside, 2013). Therefore, the value added stemming from the application of fsQCA consists not only in reflecting the complexity of the entrepreneurial intention concept but also in providing more inclusive findings. In addition, this paper extends previous studies by applying a multidimensional construct of ESE, which was introduced originally by McGee, Peterson, Mueller, and Sequeira (2009), and showing the interactions of these dimensions within the process of entrepreneurial intention enhancement. The results show that self-efficacies related to creativity and social skills may play an even greater role than self-efficacies linked to managerial skills, although they still require the complementary presence of a positive attitude and inspiring role models.

2. Conceptual framework

2.1. Determinants of entrepreneurial intention

2.1.1. Inspiring role models

It has been generally accepted that role models can exert social influence on individuals' intentions to become entrepreneurs (Krueger, Reilly, & Carsrud, 2000; Liñán & Fayolle, 2015; Urbano, Toledano, & Ribeiro-Soriano, 2011). The impact of role models on a given behaviour can be explained through the lens of the social learning theory (Bandura, 1977), which argues that learning occurs in a social context and, therefore, alongside learning by direct experience, it can also occur by observing and interacting with others. An overall positive impact of role models on entrepreneurial intentions has been confirmed in a range of empirical studies conducted in different contexts. A US-based study by Scherer et al. (1989) showed that parental role models increased preferences for entrepreneurial careers. Another study (Van Auken, Stephens, Fry, & Silva, 2006) using student samples from the US and Mexico found that family role models impacted university student career intentions and increased entrepreneurial intentions. Using case studies, Urbano et al. (2011) established that individuals with a similar ethnic background can inspire other community members to venture into new business creation. Lerchundi, Morales-Alonso, and González-Tirados (2015), using a sample of Spanish technology students, showed that the professional experience of their parents influenced students' entrepreneurial intentions, who were more inclined to become entrepreneurs if their parents were entrepreneurs than if they were civil servants. Similarly, the results of GUESS survey from a large, cross-country study (Laspita, Breugst, Heblich, & Patzelt, 2012), showed that exposure to entrepreneurs in the family, such as parents and grandparents, increases students' entrepreneurial intentions. The positive impact of role models on entrepreneurial intentions and behaviours was observed not only for student samples but also for academics (Fernández-Pérez, Alonso-Galicia, Rodríguez-Ariza, & del Mar Fuentes-Fuentes, 2015) and active entrepreneurs (Bosma et al., 2012). The research also shows that not only are entrepreneurial intentions affected but also actual behaviours (Bosma et al., 2012).

However, notwithstanding the proven positive influence of role models through the aforementioned studies, several works failed to establish such a positive impact. In a recent review by Zapkau, Schwens, and Kabst (2017), contrasting findings were also acknowledged. For instance, Brenner, Pringle, and Greenhaus (1991) as well as Gird and Bagraim (2008) were unable to establish a significant link between exposure to entrepreneurial role models and increased

entrepreneurial intention. This ambiguity concerning the impact of role models can be explained with the help of studies rooted in the social comparison theory, which details conditions under which role models may provide motivation to pursue specific goals or make specific career choices. It has been found, for example, that only successful role models can increase inspiration, identification and proactive career behaviour (Buunk, Peiró, & Griffioen, 2007; Laviolette, Lefebvre, & Brunel, 2012). Similarly, only successful parental role models were able to increase desirability and feasibility perceptions (Criaco, Sieger, Wennberg, Chirico, & Minnola, 2017). The positive impact of role models on motivations to pursue ambitious goals occurs only when the role models` achievements appear attainable in terms of timing and abilities (Lockwood & Kunda, 1997). Thus, considering these earlier findings, it can be argued that not every entrepreneur to whom a person is exposed will become a role model, but only those who can inspire one to achieve certain goals and make certain career choices (Bosma et al., 2012). The inspirational effect of role models was demonstrated previously by Souitaris, Zerbinati, and Al-Laham (2007). Following their approach, we conceptualize inspiring role models as such encounters with entrepreneurs that inspire individuals to consider entrepreneurship as a career (see Methodology section for further explanation).

2.1.2. Attitude towards entrepreneurship

An attitude towards a behaviour, according to Ajzen (1991, p.188), "refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question". Bagozzi (1981) confirms that the relationship between attitude and behaviour occurs indirectly by means of attitude affecting intentions and intentions affecting behaviours. An attitude towards a behaviour is determined by salient beliefs concerning the desirability of this behaviour's outcomes (Ajzen, 1991; Ajzen & Fishbein, 1980). In the context of entrepreneurial intentions, the attitude towards the behaviour refers to the subjective appraisal of entrepreneurial activities and their outcomes, in particular, for the sake of this study, it reflects to what extent individuals perceive entrepreneurial activity as a worthwhile and rewarding experience. When people expect positive outcomes from entrepreneurial activity they are more likely to venture into business creation. A positive attitude towards entrepreneurial activity should, according to the theory of planned behaviour, contribute to forming entrepreneurial intentions (Ajzen, 1991; Krueger & Carsrud, 1993). Past empirical studies have shown that the link between the attitude towards entrepreneurship/self-employment and entrepreneurial intentions is significant (see for example: Aragon-Sanchez, Baixauli-Soler, & Carrasco-Hernandez, 2017; Carr & Sequeira, 2007; Douglas & Shepherd, 2002; Fini, Grimaldi, Marzocchi, & Sobrero, 2012; Krueger et al., 2000; Moriano, Gorgievski, Laguna, Stephan, & Zarafshani, 2012; Tkachev & Kolvereid, 1999). Such a causal link has been confirmed in diverse contexts. For example, the small business founder's attitude towards entrepreneurial behaviour has been found to be the key determinant of corporate entrepreneurial behaviour (Fini et al., 2012). The positive link between attitude and entrepreneurial intentions has also been verified in cross-country studies, showing that a positive attitude towards entrepreneurship was the strongest antecedent of entrepreneurial intentions (Moriano et al., 2012) and entrepreneurial activity (Jones et al., 2011).

2.1.3. Entrepreneurial self-efficacy

People's perceptions of their abilities to prepare and execute the actions required to achieve a desired outcome are referred to as self-efficacy. Thus, self-efficacy does not refer to the skill itself, but instead to individuals' judgements of these skills (Bandura, 1977; Kickul, Gundry, Barbosa, & Whitcanack, 2009). While different approaches to measuring entrepreneurial self-efficacy (ESE) have been taken in the past, with many studies treating it as a one-dimensional construct, this paper follows McGee et al. (2009), who argue that ESE is a multidimensional construct composed of searching, planning, marshalling,

implementing people and implementing finance. Several different activities are thus grouped into these five sub-constructs, all of which refer to different dimensions of entrepreneurial self-efficacy, which reflect distinct dimensions of entrepreneurial activity. According to McGee et al. (2009), searching self-efficacy involves searching for new opportunities by means of identifying the need for and developing new products or services. Planning self-efficacy refers to estimating market needs and the need for capital, determining the price and designing promotional activities. Marshalling self-efficacy involves obtaining support for the new venture's vision, the ability to network and to communicate clearly the business idea. Implementing people and implementing finance self-efficacies refer to self-perceptions concerning abilities to manage people and finance in a business organization (McGee et al., 2009).

The link between entrepreneurial self-efficacy and entrepreneurial intentions can be traced back to Bandura (1977), who claimed that self-perceptions of personal skills in performing certain tasks affect career intentions. Both leading theories that are used to explain entrepreneurial intentions, namely, the theory of planned behaviour (Ajzen, 1991) and the entrepreneurial event model (Shapero & Sokol, 1982), regard entrepreneurial self-efficacy as a major determinant of entrepreneurial intentions. While entrepreneurial event model directly refers to entrepreneurial self-efficacy, in the case of the theory of planned behaviour, entrepreneurial self-efficacy is part of a broader construct of perceived behavioural control. The link between entrepreneurial self-efficacy and entrepreneurial intention and actions was proposed by Boyd and Vozikis (1994), while Krueger and Brazeal (1994) regarded entrepreneurial self-efficacy as a prerequisite for being an entrepreneur. Bayon, Vaillant, and Lafuente (2015) explain that a perceived entrepreneurial ability encourages individuals towards taking concrete entrepreneurial actions. In this respect, there is overwhelming empirical support for the ESE's positive impact on entrepreneurial intentions (Aragon-Sanchez et al., 2017; Chen, Greene, & Crick, 1998; Krueger et al., 2000; Lüthje & Franke, 2003).

2.2. A configurational approach

Following from the above discussion, investigating the influence of such intervening factors as attitude towards behaviour and entrepreneurial self-efficacy may also require a more holistic approach to uncover the true role of these variables. Evidence seems to suggest that entrepreneurial behaviour is complex and is more likely to be the resultant of interrelations across such factors (Krueger & Kickul, 2006). For instance, previous studies argued that the determinants of entrepreneurial intentions, including perceived desirability (or attitudes) and self-efficacy, interact in the formation of individuals' intentions to become entrepreneurs (Eagly & Chaiken, 1993; Fitzsimmons & Douglas, 2011; Steel & König, 2006). Here, the premise is that when forming their intentions, individuals would consider their ability to achieve the outcome (self-efficacy) together with the value of the expected outcome (attitudes). Therefore, it is the combined influence of both the elements that would generate the intention (Steel & König, 2006). In this respect, scholars point towards the importance of capturing the combined effect, as this will have important implications for understanding entrepreneurial behaviour (Fitzsimmons & Douglas, 2011). A recent study by Palmer, Stöckmann, Niemand, Kraus, and Kailer (2017) showed that it is the combined effect of self-efficacy attributes with other factors that is likely to drive performance. In regard to intentions, the underlying reasoning that intention models are the resultant of independent influences has been questioned for overlooking the potential interdependencies that are likely to exist among various determinants (Straatmann, Rothenhöfer, Meier, & Mueller, 2017). From a theoretical point of view, interactions between attitudes and self-efficacy have been suggested in the intention model literature (Straatmann et al., 2017). For example, Lanero, Vázquez, and Aza (2016) found that when

students perceive personal or financial barriers, their interest in entrepreneurship may not act as a precursor to entrepreneurship activity. Self-efficacies are more likely to increase intentions to undertake a given behaviour mainly when coupled with a positive attitude towards this behaviour, and vice versa (Conner & McMillan, 1999; Eagly & Chaiken, 1993). Similarly, interactions between role models and self-efficacy as well as attitudes towards entrepreneurship have been established in previous studies. For instance, Liñán and Chen (2009) demonstrate that role models positively affect personal attitude towards entrepreneurship among Spanish students. Support for a positive link between role models and attitude also comes from Carr and Sequeira (2007), who find that a positive attitude mediates the relationship between exposure to family role models and entrepreneurial intentions, and from Fellnhofer and Puumalainen (2017), who show a positive link between role models and perceived desirability. Regarding self-efficacy, Carr and Sequeira (2007) found that prior family business exposure positively increased ESE and indirectly contributed to entrepreneurial intentions. Mueller, Zapkau, and Schwens (2014) found, in a study on students from Ethiopia and Germany, that role models contribute to perceived behavioural control (a construct overlapping with ESE) both in the German and Ethiopian student samples. Furthermore, a study by BarNir et al. (2011) provides support for the positive causal link between entrepreneurial role models and entrepreneurial self-efficacy among US students, showing that ESE mediates the link between role models and entrepreneurial intentions. Similar links were found for female college students (Austin & Nauta, 2016). Laviolette et al. (2012) concluded that role models positively affect entrepreneurial intentions via improving ESE, provided that they arouse positive emotions and that students can identify with these role models. Likewise, Fellnhofer (2017) indicates that role models increase perceived behavioural control via strengthening self-efficacy.

In other contexts, such a complexity has already been proven. For example, in relation to the behavioural intention to use technology, self-efficacy and attitudes were not deemed sufficient; instead, their combined influence was more likely to generate intentions (Jiang, Chen, & Chen, 2016). In a study looking at the intentions to use cannabis, Conner and McMillan (1999) found that perceived behavioural control (which overlaps with self-efficacy) would reduce the intention to use cannabis only when a negative attitude towards this behaviour exists. Another study predicting consumers' intentions to switch service providers confirmed such a combined influence (Bansal & Taylor, 2002). Similarly, attitudes were found to have a stronger impact on intentions when combined with a positive social influence, including role models (Umeh & Patel, 2004). Straatmann et al. (2017) proved that employees' change-supportive intentions can be most predicted when attitudes are combined with either perceived behavioural control or social influence. In conclusion, the aforementioned studies seem to suggest that behavioural intention is a complex phenomenon that is predicted by configurations of factors rather than single effects. In fact, despite the importance of factors such as self-efficacy, attitude towards entrepreneurship and inspiring role models, these would only be effective when combined (see Fig. 1). It can therefore be argued that this principle can also hold for intention models predicting entrepreneurial intentions. Hence, the following propositions are formulated for the context at hand:

Proposition 1. Self-efficacy factors in terms of searching, marshalling, planning, implementing people and implementing finance, positive attitudes towards entrepreneurship and inspiring role models are necessary but not sufficient to predict entrepreneurial intention.

Proposition 2. Configurations of self-efficacy factors in terms of searching, marshalling, planning, implementing people and implementing finance, positive attitudes towards entrepreneurship and inspiring role models are more likely to predict entrepreneurial intentions than the independent effects of these factors.
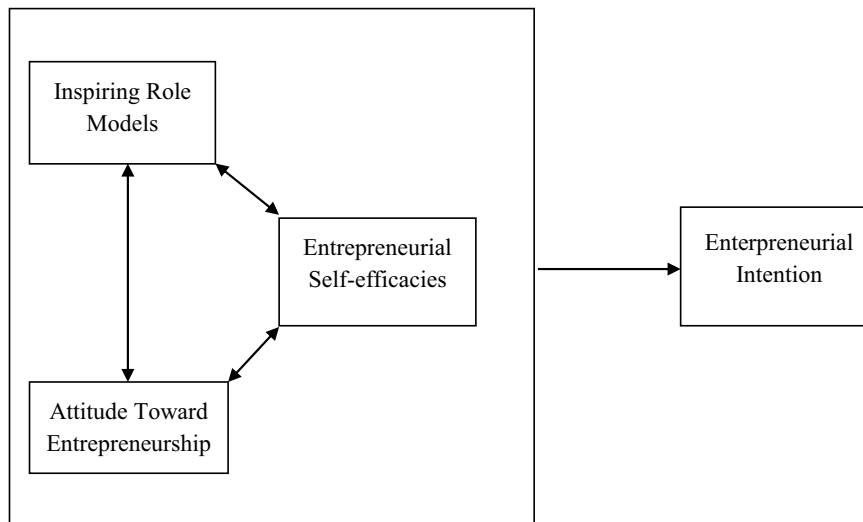
Fig. 1. Overview of research model.

3. Data and methodology

The study is based on a questionnaire survey of university students from Polish higher education institutions (HEIs) conducted in 2015. While the study has applied a non-probability sampling, efforts have been undertaken to obtain a sample size and composition that would alleviate possible limitations created by the sampling procedure. Respondents represent five HEIs, four of which were located in Wielkopolska (western Poland) and one in the Małopolska region (southern Poland). Two of these HEIs were universities of applied sciences, one private and one public, while the remaining three were public academic universities. This composition of HEIs participating in the survey corresponds with the role played by specific groups of HEIs in Poland, i.e., private vs public, applied science vs academic ones. The survey was administered in paper form as well as online. 481 responses were obtained, but after eliminating responses from students who declared that they were or are self-employed, the size of the usable sample was 423. The sample included students from diverse disciplines but was dominated by three groups of students majoring in business (130), engineering (103) and science (89). The share of engineering students corresponds to the share of these students in the overall population of Polish students, which is also 24% (Statistics Poland, 2017). In terms of gender, the sample is composed of 65% females and 35% males. This corresponds roughly with the gender distribution in university education in Poland, which is 58% females when all types of degrees are considered and 65 to 66% when engineering majors are excluded (Statistics Poland, 2017). The age of students included in the sample varies between 20 and 40 with an average age of 23.3 and a median age of 23.

Most of the measures used in the survey were adapted from previous research. Entrepreneurial intentions were measured using Liñán and Chen's (2009) items on a 5-point Likert scale. For the intervening variables, the study followed McGee et al. (2009), both in the case of ESE and attitude towards entrepreneurship, and a 5-point scale was also applied. McGee et al. conceptualised ESE as a multidimensional construct composed of five dimensions, i.e., searching, planning, marshalling, implementing people and implementing finance. The activities covered by these sub-dimensions of ESE are exemplified by such items as follows: "brainstorm (come up with) a new idea for a product or service" (searching sub-dimension), "estimate customer demand for a new product or service" (planning sub-dimension), "get others to identify with and believe in my vision and plans for a new business" (marshalling sub-dimension), "supervise employees" (implementing people sub-dimension) or "manage the financial assets of my business" (implementing finance sub-dimension) (McGee et al., 2009). For inspiring role models, the study

employs a formative construct adapted from Souitaris et al. (2007). This construct consists of three indicators measured on a 5-point scale. The respondents were asked about the extent to which events, such as an "entrepreneur in the family", "guest entrepreneur at the university" and "personal encounter with a successful entrepreneur", made them seriously consider embarking on an entrepreneurial career. The use of a formative measurement was based on guidelines developed by Hair Jr, Hult, Ringle, and Sarstedt (2016). Here, the three indicators used to capture inspiring role models are causing (forming) the constructs. Encountering an entrepreneur either within the family, at university or as a personal contact will theoretically inspire the individual and not the other way (i.e., the more the individual is inspired, the more likely they will encounter an entrepreneur). Therefore, the formative measurement was deemed the most suitable approach.

To test the propositions developed in this study, a case-based analysis using fuzzy-set qualitative comparative analysis is applied. This novel technique is being increasingly applied in studies focused on entrepreneurial activity, among others (Beynon, Jones, & Pickernell, 2016; Kraus, Ribeiro-Soriano, & Schüssler, 2018). The technique is able to uncover the combined influence of the various factors predicting the sought outcome. Additionally, fsQCA is also able to capture the configurations likely to lead to the negated outcome, which, in this case, are low entrepreneurial intentions. This outcome would increase the comprehensiveness of the results. Finally, the technique can reveal additional patterns in the data that otherwise would have been difficult to capture (Kent, 2015; Vis, 2012). These additional patterns would emerge as fsQCA accounts for contrarian cases that do not necessarily fit with the general trend of the data (Woodside, 2013). These situations are typically caused by unobserved heterogeneity and complex causality issues that cannot be fully uncovered using regression-type analyses, such as PLS-SEM (Schlittgen, Ringle, Sarstedt, & Becker, 2016). As a result, fsQCA helps address the issue of "equifinality", which is often overlooked when studying management-related issues. The concept of equifinality involves situations where different but equally effective combinations of factors lead to the same outcome (Fiss, 2007; Raymond & St-Pierre, 2013). Practically, fsQCA is applied in this study to uncover additional mechanisms whereby entrepreneurial intention is fostered.

4. Results

4.1. Scales' reliability and validity

Prior to the application of the fsQCA analysis, the measures used in this study need to be assessed in terms of validity and reliability. In so

Table 1
Reliability and validity indicators for reflective constructs.

	Cronbach's alpha	CR	AVE
Attitude	0.832	0.899	0.748
ESE ImplFinance	0.893	0.933	0.823
ESE ImplPeople	0.914	0.932	0.697
ESE marshalling	0.787	0.874	0.698
ESE planning	0.828	0.885	0.659
ESE searching	0.810	0.888	0.725
Ent intentions	0.953	0.963	0.813

doing, the study follows Cheng, Chang, and Li (2013) in using a structural equation modelling approach. Here, the study employed a linear partial least squares structural equation modelling (PLS-SEM) using SmartPLS 3.27 (Ringle, Wende, & Becker, 2015).

To examine the reliability and validity of the reflective constructs, individual reliability, internal reliability and convergent validity were all examined through the outer loadings, composite reliability (CR), Cronbach's Alpha coefficient and the Average Variance Extracted (AVE) (see Appendix A for outer loadings and Table 1 for the remaining indices). Reliability refers to the consistency of a measure, that is, the extent to which a given measure produces consistent outcomes under consistent conditions, whereas validity considers the extent to which a set of indicators jointly measure what they are expected to measure (Hair Jr et al., 2016).

Table 1 indicated good individual reliability for all indicators (See Appendix A). The table illustrates that the remaining three indices also show acceptable values exceeding the cut-off thresholds, namely, 0.7 and 0.5 for the internal reliability and convergent validity of reflective variables, respectively (Henseler, Ringle, & Sinkovics, 2009; Mackenzie, Podsakoff, & Podsakoff, 2011). Additionally, discriminant validity was also verified through the square roots of AVE. Establishing discriminant validity requires the square root of each construct's AVE to be greater than the correlations with the remaining constructs (Fornell & Larcker, 1981). Table 2 confirms this requirement.

Turning to the role model formative variable, its validity is examined through the indicators' weights and the Variance Inflation Factor (VIF) (See Table 2) (Hair, Ringle, & Sarstedt, 2011). In this case, most indicators' weights are significant and have a VIF less than the threshold 5 (Hair et al., 2011) (See Table 3).

Finally, multi-collinearity issues and common method bias are checked for both the reflective and formative variables using the variance inflation factor (VIF) and the Harman's single factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), respectively. The VIF for each construct was below the threshold 5, which suggests no major collinearity issues. Further, Harman's test indicates no major sign of common method bias, as the single factor accounted for 36.70%, which is less than the 50% threshold (Lings, Durden, Lee, & Cadogan, 2014).

4.2. Configurational analysis (fsQCA)

To test the two propositions put forward in this study, an fsQCA analysis is conducted. Table 4 shows that most of the estimated

correlation coefficients have an absolute value lower than 0.6. This implies that the tested relationships among the variables are generally asymmetric, and thus, it is likely that combination of factors, as opposed to single effects, would lead to the sought outcome (equifinality principle), which, in this case, is a higher entrepreneurial intention (Skarmeas, Leonidou, & Saridakis, 2014; Woodside, 2013). In light of this, and using fsQCA, the current study takes a more comprehensive approach to identify the determinants of students' entrepreneurial intention.

4.2.1. Calibration

A first step in fsQCA is to calibrate the causal conditions (inspiring role models, ESE and attitude) and the outcome (entrepreneurial intentions), i.e., transforming the original Likert scores into fuzzy-set scores (Ragin, 2009). In this process, traditional variables are converted into fuzzy sets. Unlike traditional variables, a fuzzy set is a group of continuous values that illustrate the degree of membership in a given category (for example, the degree to which students have positive attitude towards entrepreneurship), and these values would range from 0 to 1 (Skarmeas et al., 2014). Within this range, the researcher needs to identify three values from the Likert scale that would correspond to three qualitative anchors for the following: full membership (1), crossover point (0.5) and full non-membership (0) (Ragin, 2009). Full or non-membership would reflect the extent to which cases belong (or not) to a given category, whereas the crossover point represents a situation of maximum ambiguity regarding whether a case belongs or not to a given set (Cheng et al., 2013). The choice of the three anchors should be based on the researcher's theoretical knowledge (Ragin, 2008a). In this study, the researchers used the scores 1 (strongly disagree), 3 (neutral) and 5 (strongly agree) to represent non-membership, the crossover point and full membership. However, according to Kent (2015), the calibration of Likert scales could generate a large number of crossover points (0.5), which would be problematic for the analysis since these cases will not be included in the truth table. For this reason, following Kent's (2015) suggestion, cases with 0.50 were assigned the value of 0.51. Additionally, to check the robustness of the coding adopted in the study, different thresholds for full membership, non-membership and crossover were also applied. For example, the study considered the values 2, 3 and 4 as the matching thresholds. In other words, all individuals answering "agree" or "strongly agree" were considered as fully in, whereas all the ones answering "disagree" or "strongly disagree" were treated as fully out. The results yielded similar combinations.

4.2.2. Results of fsQCA

The antecedents of the two sets of outcomes, namely, high entrepreneurial intentions (EIs) and low entrepreneurial intentions (~EIs) are presented in this section. For this purpose, the tables containing the logically possible combinations of conditions leading to high/low entrepreneurial intentions (known as the truth tables) are analysed (Ragin, 2008a). The number of configurations is 2^k (where k refers to the number of conditions). In this study, $2^6 = 64$ possible

Table 2
Discriminant validity of reflective constructs.

	1	2	3	4	5	6	7	8
1. Attitude	*0.865*							
2. Ent intentions	0.503	*0.902*						
3. Impl. finance SE	0.131	0.228	*0.907*					
4. Impl. people SE	0.298	0.393	0.532	*0.835*				
5. Marshalling SE	0.343	0.445	0.518	0.687	*0.836*			
6. Planning SE	0.283	0.377	0.578	0.665	0.691	*0.812*		
7. Searching SE	0.343	0.43	0.304	0.577	0.631	0.678	*0.852*	
8. InspRole	0.381	0.521	0.167	0.225	0.296	0.254	0.314	*Formative*

The values in bold and italics on the diagonal are the square roots of AVE.

Table 3
Validity measure for formative construct.

Indicators	Original sample	Sample mean	Standard deviation	T statistics	P values	VIF
IRpersonal → InspRole	0.615	0.604	0.104	5.927	0.000	1.278
IRuni → InspRole	0.206	0.199	0.113	1.825	0.069	1.212
IRfamily → InspRole	0.490	0.485	0.111	4.416	0.000	1.126

Table 4
Correlation coefficients.

	1	2	3	4	5	6	7	8
1. Attitude	1							
2. Ent intentions	0.503	1						
3. Impl. finance SE	0.131	0.228	1					
4. Impl. people SE	0.298	0.393	0.532	1				
5. Marshalling SE	0.343	0.445	0.518	0.687	1			
6. Planning SE	0.283	0.377	0.578	0.665	0.691	1		
7. Searching SE	0.343	0.43	0.304	0.577	0.631	0.678	1	
8. InspRole	0.381	0.521	0.167	0.225	0.296	0.254	0.314	1

Table 5
Necessity analysis for high entrepreneurial intention.

	Consistency	Coverage
IR	0.53	0.90
Searching SE	0.88	0.69
Marshalling SE	0.87	0.69
Impl. people SE	0.90	0.67
Impl. finance SE	0.72	0.69
Planning SE	0.81	0.72
Attitude	0.95	0.64

configurations could be achieved. However, to identify the valid configurations (i.e., the ones leading to high/low entrepreneurial intention), thresholds for the minimum number of cases in each configuration (frequency threshold) and the consistency score are set (Woodside & Zhang, 2012).

The frequency threshold refers to the minimum number of cases with greater than 0.5 membership that a given combination should include to be worth investigating. In other words, the frequency threshold determines the viability of a given combination (Ragin, 2008a), Combinations that do not meet the minimum number of cases are called remainders (Kent, 2015). In small samples, the frequency threshold is generally limited to the presence of one single case; however, when larger samples are involved, the minimum number of cases may be higher. In the present case, the frequency cut-off is set at 3 cases. This captures 91% of the cases in the study, which is above Ragin's (2008b) criterion (Cheng et al., 2013; Ren, Tsai, & Eisingerich, 2016).

Consistency is akin to significance level in statistical hypothesis testing (Woodside & Zhang, 2012); it shows the proportion of the cases under a given configuration displaying the outcome (Ragin, 2008b; Woodside & Zhang, 2012). A low consistency score would suggest a high number of inconsistent cases, that is, cases that do not exhibit high/low entrepreneurial intention (Kent, 2015). Choosing the relevant consistency threshold may depend on the obtained results. At times, a significant drop in the consistency scores may emerge. In such situations, this gap could be used to set the consistency threshold (Ragin, 2008a). However, the research generally argues that consistency scores above 0.74 reflect an informative model/solution (Skarmeas et al., 2014; Woodside, 2013). In the present research, for combinations leading to high EIs, a drop from 0.94 to 0.85 has been noticed. Hence, a cut-off value of 0.94 was selected. As for low EIs, the threshold selected was 0.91.

The following sub-sections present the necessity analysis as well as the truth tables for both high and low entrepreneurial intentions. In these, complex solutions represent the alternative causal sets of conditions (role models, ESE and attitude towards entrepreneurship) leading to high/low entrepreneurial intentions. This is also known as "sufficiency analysis", in which the sufficient conditions to achieve a given outcome are highlighted.

4.2.3. Necessity analysis

A logical necessity analysis identifies the necessary individual conditions for high entrepreneurial intention. These individual conditions would be necessary but not sufficient to produce the outcome (Kent, 2015). Similarly, this could also be used to identify the necessary

conditions for the negation of the outcome. For a condition to be necessary, the consistency value should be greater than 0.90 (Emmenegger, Schraff, & Walter, 2014).

Regarding necessity conditions for high entrepreneurial intention, with a consistency score exceeding the 0.90 threshold, Table 5 shows that a positive attitude towards entrepreneurship is a necessary condition leading to a high entrepreneurial intention (Kent, 2015), meaning that high entrepreneurial intention requires a positive attitude towards entrepreneurship. In other words, it can be claimed that a positive attitude is necessary but not sufficient to reach high entrepreneurial intentions. On the other hand, Table 6 reveals that low exposure to inspiring role models is also a necessary (yet insufficient) condition for low entrepreneurial intention.

4.2.4. Configurations for high entrepreneurial intentions

The study uses the derived complex solution as it does not make any simplifying assumptions compared to the parsimonious and intermediate solutions (Skarmeas et al., 2014). The following table (Table 7) illustrates the combinations leading to high entrepreneurial intentions. To improve readability, a simple representation with black and white circles was used. The black and white circles indicate the presence and absence/negation, respectively, of a causal condition. The blank cells illustrate cases where the presence or absence of such condition does not affect the outcome. Each combination is illustrated with values for consistency and coverage. Coverage shows the proportion of cases explained by the solution (raw coverage) (Kent, 2015; Ragin, 2008a). Coverage is similar to the effects size in hypothesis testing (Woodside & Zhang, 2012). The overall solution coverage is also given, which illustrates to what extent entrepreneurial intentions can be determined by the identified combinations. This is akin to the R-square value reported in variable-based techniques (Woodside, 2013).

Table 7 identifies three solutions leading to high entrepreneurial intentions. Solution 1 has the highest consistency (a score of 0.95) and includes students who are highly inspired by role models, exhibit a

Table 6
Necessity analysis for low entrepreneurial intention.

	Consistency	Coverage
~IR	0.94	0.66
~Searching SE	0.61	0.84
~Marshalling SE	0.62	0.83
~Impl. people SE	0.57	0.85
~Impl. finance SE	0.67	0.71
~Planning SE	0.68	0.79
~Attitude	0.47	0.91

Table 7
Combinations of drivers leading to high entrepreneurial intentions.

Solutions	IR	Searching SE	Marshalling SE	Impl. people SE	Impl. finance SE	Planning SE	Attitude	Raw coverage	Consistency
1	●	○	●	●	●	○	●	0.27	0.95
2	●	●		●	●	●	●	0.43	0.94
3	●	●	●		○		●	0.36	0.93

● = Presence of a condition ○ = Absence of a condition Blank cell = "Don't care".
Note: Overall solution coverage: 0.49; Solution consistency: 0.92.

positive attitude towards entrepreneurship and perceive themselves as having good abilities in marshalling and implementing people and finances. Alternatively, with a consistency score of 0.94, solution 2 includes students who are highly inspired by role models, exhibit a positive attitude towards entrepreneurship and perceive themselves as having good abilities in searching, implementing people, implementing finance and planning. Finally, solution 3 has a consistency score of 0.93 and comprises students who are highly inspired by role models, exhibit a positive attitude towards entrepreneurship and perceive themselves as having good abilities in searching and marshalling. For the coverage score, these three solutions have an overall score of 0.49, which suggests that 49% of the entrepreneurial intention is explained by the three combinations.

4.2.5. Configurations for low entrepreneurial intentions

Examining the factors leading to the "absence" of a given outcome could also be of interest to the researchers (Kent, 2015; Woodside & Zhang, 2013). Table 8 illustrates the combinations leading to low entrepreneurial intention. Identifying the combinations leading to the negation (i.e., the absence) of entrepreneurial intention gives more comprehensive insight regarding the factors leading to this outcome. From Table 8, four solutions leading to low entrepreneurial intentions were obtained.

In short, it could be concluded that when students are not inspired by role models, they are highly likely to develop low entrepreneurial intentions despite exhibiting a positive attitude and high self-efficacies, such as marshalling and implementing finance. This clearly confirms the important influence of inspiring role models on enhancing entrepreneurial intentions and highlights the complexity underlying entrepreneurial intentions.

Based on those findings, it appears that inspiring role models and a positive attitude towards entrepreneurship are important for students to develop high entrepreneurial intentions (since these are common in all three solutions). However, the necessity analysis revealed that a positive attitude towards entrepreneurship (consistency = 0.95) is the only necessary condition for high entrepreneurial intention. In contrast, low inspiring role models (consistency = 0.94) was the only factor necessary for low entrepreneurial intentions. Hence, while it can be confirmed that a positive attitude towards entrepreneurship is a necessity for high entrepreneurial intentions, the absence of inspiring role models is rather a necessity for developing low entrepreneurial intentions, despite the presence of a positive attitude and/or self-efficacies. Additionally, it could also be noted that not all self-efficacies are needed to develop high entrepreneurial intentions. In fact, individuals will either need searching and marshalling SEs, or searching, implementing people and finance and planning SEs, or marshalling, implementing people and finance SEs. In conclusion, the present findings confirm both propositions presented in this study.

5. Discussion

This study extends the previous research on the cognitive drivers of entrepreneurial intentions, which linked entrepreneurial exposure to perceived desirability and intentions (Krueger, 1993) or ESE with entrepreneurial intentions (Chen et al., 1998; Zhao, Seibert, & Hills, 2005). This study has also uncovered the applicability of the complexity approach in the entrepreneurship context. In this respect, the present study confirms that inspiring role models would predict entrepreneurial intentions only when combined with positive attitudes towards entrepreneurship, alongside various configurations of the ESE dimensions. Such findings are in line with the view arguing for complexity in regard to predicting entrepreneurial intentions (Krueger & Kickul, 2006). They also confirm past studies that predict behavioural intentions in other contexts (Bansal & Taylor, 2002; Fitzsimmons & Douglas, 2011; Jiang et al., 2016; Steel & König, 2006; Straatmann et al., 2017). In forming their intentions, individuals consider their abilities to conduct the action in question together with the return value expected from such an action (Steel & König, 2006). In situations where high self-efficacy is combined with a negative attitude, intentions are less likely to take place (Conner & McMillan, 1999). In entrepreneurship, possessing entrepreneurial abilities would not necessarily lead to new venture creation unless a positive attitude towards entrepreneurship is expressed. Likewise, a positive attitude would not lead to new venture creation unless the ability to conduct such an act is perceived. Furthermore, in accordance with the complexity approach, the current results indicate that inspiring role models would only influence EI when combined with additional factors, such as a positive attitude and ESE. This is in line with past studies arguing that social influence may only enhance behavioural intentions when coupled with a positive attitude towards the behaviour in question (Straatmann et al., 2017; Umeh & Patel, 2004). This is supported by the necessity analysis showing that a positive attitude towards entrepreneurship is considered necessary but not sufficient in fostering entrepreneurial intentions. As this study shows, a positive attitude towards entrepreneurship needs to be complemented by ESE and inspiring role models.

Finally, following McGee et al.'s (2009) multi-construct approach to ESE, the current study is able to show that not only are some of the self-efficacy dimensions needed to develop high entrepreneurial intentions,

Table 8
Combinations of drivers leading to low entrepreneurial intentions.

Solutions	IR	Searching SE	Marshalling SE	Impl. people SE	Impl. finance SE	Planning SE	Attitude	Raw coverage	Consistency
1	○		○	○	○	○	○	0.32	0.95
2	○	●	○	●	●	●	○	0.33	0.93
3	○	○		○	○	○	●	0.41	0.91
4	○	○	●	○	●		●	0.31	0.91

● = Presence of a condition ○ = Absence of a condition Blank cell = "Don't care".
Note: Overall solution coverage: 0.55; Solution Consistency: 0.89.

but also multiple combinations of these dimensions could be relevant. This confirms the existence of multiple mechanisms (equifinality) linking inspiring role models and entrepreneurial intentions. In fact, the obtained combinations of drivers leading to high entrepreneurial intentions with highest consistency include three different configurations of ESEs (alongside a positive attitude and inspiring role models). The first set combines the presence of marshalling and implementing ESEs, whereas the second combines all but marshalling ESEs and the third combines the presence of searching and marshalling ESEs. The different combinations of ESEs reflect the heterogeneity of the respondent sample and can be explained by the social learning theory (Bandura, 1977), which suggests that the development of different ESEs could depend on the exposure to specific learning environments both at university and pre-university stages. For example, being part of an engineering major could be expected to enhance self-efficacy related to the creation of new solutions or the need of such solutions (searching ESE), while the development of implementing-finance ESE could be expected to require at least some education in the area of financial management, which is more likely to be part of a business major. Likewise, the development of self-efficacy in such skills as communication and networking (part of marshalling SE) could be expected to be more a matter of interactive teaching methods, such as case study discussions or presentations, than a matter of a study major. The key pattern stemming from the three combinations of entrepreneurial intentions` drivers is that the searching and marshalling ESEs suffice when accompanied by inspiring role models and positive attitude, but when only one of these SEs is present, it needs to be complemented by ESE related to business skills, such as managing people, finance or planning. Ultimately, it follows from these observations that the development of student self-confidence in respect to their creativity as well as social skills might be equally if not more important than the enhancement of self-confidence in respect to managerial skills. This shows that recent trends in student education that encompass brainstorming, creativity workshops, elevator talks, pitch-meeting simulations and design thinking workshops (Detienne & Chandler, 2004; Huq & Gilbert, 2017) might add the key entrepreneurial self-efficacies needed to develop entrepreneurial intentions. The major impact of the combined influence of searching and marshalling, among other dimensions of ESE, corresponds to the central role that opportunity identification and resource acquisition play in the new venture creation process (Brush, Green, & Hart, 2001; Jarvis, 2016; Rawhouser, Cummings, & Newbert, 2017; Shane & Venkataraman, 2000).

6. Conclusions

This study contributes to our understanding of the influence of inspiring role models, self-efficacy and attitude towards entrepreneurship on entrepreneurial intentions. By applying the novel fsQCA, it could be concluded that entrepreneurial intentions are underlined by complex mechanisms involving role models, attitudes towards entrepreneurship and entrepreneurial self-efficacies. The study suggests that while inspiring role models, attitudes towards entrepreneurship and entrepreneurial self-efficacy are all key to promoting entrepreneurial intentions, it is their interplay that is likely to be most effective. Thus, the paper supports previous evidence (Beynon et al., 2016; Kraus et al., 2018; Rey-Martí, Ribeiro-Soriano, & Sánchez-García, 2016) on the applicability of the complexity approach and fsQCA in the context of entrepreneurship research. More importantly, it demonstrates that despite the statistical significance of individual intention drivers proved with regression methods (Aragon-Sanchez et al., 2017; Laspita et al., 2012; Moriano et al., 2012; Van Auken et al., 2006), the real influence of these variables may be considerably different when combined or accompanied by other important antecedents of entrepreneurial intentions. This is an important and novel finding that addresses previous calls for applying configuration approaches, such as fsQCA, in the quest of entrepreneurial intentions (Krueger, 2017; Mezei & Nikou, 2018).

Moreover, by establishing multiple paths towards entrepreneurial intentions, as opposed to one single solution, this study contributes to the entrepreneurship literature by uncovering the "equifinality" phenomenon underlying entrepreneurial behaviour. This is key, as it can help reconcile previous contradictory findings examining drivers of entrepreneurial intentions by showing that multiple routes can lead to the creation of entrepreneurship activity.

As far as the practical implications of the study are concerned, the current findings suggest that, when designing their programmes, entrepreneurship educators should consider the use of role models in conjunction with other factors (in this case, entrepreneurial self-efficacy and attitudes), as these are interconnected determinants. For instance, introducing role models by exposing participants to successful entrepreneurs or guest speakers should be considered alongside its consequences for ESE and attitude. Since enhancing self-efficacy beliefs generally takes place through social comparison (Laviolette et al., 2012), developers and educators should ensure that participants can identify themselves with the "entrepreneurial model" and that the achieved entrepreneurial outcome is feasible (self-efficacy) and worth doing (favourable attitudes). Similarly, when educators introduce activities with the purpose of enhancing ESE, these should be accompanied with seminars or events showcasing the benefits and returns of entrepreneurship activity, as the sole possession of ESE traits does not necessarily lead to entrepreneurship activity unless complemented with attitudes. For the key dimensions of self-efficacies` required for increasing entrepreneurial intentions, measures should be undertaken to enhance marshalling and searching ESE among potential nascent entrepreneurs. Guest entrepreneurs should, therefore, place a greater focus on the processes of marshalling and searching, in particular by explaining the way in which entrepreneurs overcame their resource constraints and how the initial business idea developed into a marketable project. Furthermore, searching and resource acquisition should be presented as learning processes where failures are possible and do not exclude final successes. This approach would foster students' identification with entrepreneurial role models and, thus, enhance entrepreneurial identity formation (Laviolette et al., 2012; Thrane, Korsgaard, Blenker, & Neergaard, 2016) and ultimately entrepreneurial intentions.

Notwithstanding the important implications of this study, several limitations paving the way to further research should be acknowledged. First, this study applied a non-probability, convenience sampling. This approach to sample selection is prevalent in entrepreneurship studies (Ahl, 2006; Coviello & Jones, 2004), and despite its limitations, can yield good quality data when high participation and response rates are ensured (Coviello & Jones, 2004). Nevertheless, this also implies that replication studies using other samples would be welcome, as the generalisability of the results cannot be certain. Second, this is a single country study conducted among university students, and thus, extending its conclusions to other contexts should be done with caution. This limitation needs to be emphasised, as previous studies revealed differences depending on the country context (Liñán & Chen, 2009; Mueller et al., 2014). The role of context, whether national, ethnic or spatial, was proven important for the intergenerational mechanisms of self-employment transmission (Wyrwich, Stuetzer, & Sternberg, 2016). Therefore, further studies involving other respondent groups as well as other countries could show if the obtained findings hold for more experienced people with greater job experience as well as for people from countries with longer entrepreneurial traditions or from entrepreneurial clusters.

Appendix A. Items' loadings of reflective variables

Entrepreneurial intention	
I am ready to do anything to be an entrepreneur	0.811
My professional goal is to become an entrepreneur	0.893
I will make every effort to start and run my own firm	0.932
I am determined to create a firm in the future	0.933
I have very seriously thought of starting a firm	0.906
I have the firm intention to start a firm some day	0.928
Attitude towards entrepreneurship	
In general, starting a business is…worthless/worthwhile	0.886
In general, starting a business is…disappointing/rewarding	0.862
In general, starting a business is…negative/positive	0.846
Entrepreneurial Self-Efficacy	
How much confidence do you have in your ability to: (…?)	
Implementing Finance SE	
Organize and maintain the financial records of my business	0.888
Manage the financial assets of my business	0.910
Read and interpret financial statements	0.923
Implementing people SE	
Supervise employees	0.836
Recruit and hire employees	0.836
Delegate tasks and responsibilities to employees in my business	0.874
Deal effectively with day-to-day problems and crises	0.829
Inspire, encourage, and motivate my employees	0.842
Train employees	0.791
Marshalling SE	
Get others to identify with and believe in my vision and plans for a new business	0.871
Network—i.e., make contact with and exchange information with others	0.840
Clearly and concisely explain verbally/in writing my business idea in everyday terms	0.793
Planning SE	
Estimate customer demand for a new product or service	0.803
Determine a competitive price for a new product or service	0.831
Estimate the amount of start-up funds and working capital necessary to start my business	0.813
Design an effective marketing/advertising campaign for a new product or service	0.800
Searching SE	
Brainstorm (come up with) a new idea for a product or service	0.862
Identify the need for a new product or service	0.870
Design a product or service that will satisfy customer needs and wants	0.823

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