



Entrepreneurship as a career choice: The impact of locus of control on aspiring entrepreneurs' opportunity recognition

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ARTICLE INFO

Keywords:

Entrepreneurial intention
Entrepreneurial self-efficacy
Locus of control
Opportunity recognition

ABSTRACT

The ability of individuals to recognize entrepreneurial opportunities is the decisive factor in their decision to pursue entrepreneurship as a career. Hence, the purpose of this study is to investigate the role of locus of control on opportunity recognition (OR) among aspiring entrepreneurs. With a two-wave survey data of 270 aspiring entrepreneurs, our results suggest that internal and external locus of control have positive and negative relationships with aspiring entrepreneurs' OR, respectively. The findings also show that entrepreneurial intention mediates the positive and negative relationships of internal and external locus of control on OR. Entrepreneurial searching self-efficacy (ESSE) provides an interesting moderating effect. The study sheds light on an important but rarely explored research area: OR among aspiring entrepreneurs. Theoretical and practical implications are discussed.

1. Introduction

The psychological understanding of why people decide to become entrepreneurs despite the countless entrepreneurial failure stories continues to interest researchers. Scholars have consistently sought to find out how psychological attributes influence individuals' entrepreneurial decisions (Ardichvili, Cardozo, & Ray, 2003; Grégoire, Barr, & Shepherd, 2010; Shu, Ren, & Zheng, 2018). This line of research has included attributes such as feelings and moods (Baron, 2008), prior knowledge (Shane, 2000), human capital (Bhagavatula, Elfring, van Tilburg, & van de Bunt, 2010) and cognitive processes (Grégoire et al., 2010). Findings from these studies suggest that such psychological attributes have a profound impact on the quality of entrepreneurial decisions people make. As such, the potential for studying how and why some individuals prefer to be entrepreneurs while others prefer to be employees is relevant and pressing. For example, many people continue to pursue this “risky career” of entrepreneurship (Krueger & Dickson, 1994), when there are opportunities for them to be employees with salary assurance. Previous scholars (Ardichvili et al., 2003; Erez & Judge, 2001) have argued that personality plays an important role in these career decisions. Therefore, in this study, we investigate the impact of a relatively under-examined but potentially important link between aspiring entrepreneurs' locus of control and their opportunity recognition (OR) mediated by their entrepreneurial intention. Although it is generally agreed in the literature that one needs opportunities in

order to become an entrepreneur (Shane, 2000), previous research on OR has mainly focused on established entrepreneurs, which makes how aspiring entrepreneurs search for opportunities less explored. We also examine the possibility of entrepreneurial searching self-efficacy (ESSE) moderating the mediated relationships.

The theory of locus of control suggests that there are two different types of control perceptions (Ng, Sorensen, & Eby, 2006; Shane, Locke, & Collins, 2003; Zigarmi, Galloway, & Roberts, 2018). An individual can either have an internal or external locus of control (Rotter, 1966). Individuals with an internal locus of control believe that the outcome of an event, to a greater extent, is influenced by their actions or behaviors. On the other hand, individuals with an external locus of control believe that the outcomes of an event are largely out of their control (Judge, Erez, Bono, & Thoresen, 2002). Individuals' perception of whether or not their actions have any influence on the outcomes of event relates directly to many key behavioral decisions (Wang, Bowling, & Eschleman, 2010) such as job attitude, the perception of work environment, job performance and career success (Ng et al., 2006). Consequently, we believe that locus of control may influence OR because although opportunities themselves are objective, the recognition process is subjective (Shane & Venkataraman, 2000). For instance, one phenomenon may be considered an opportunity by some people but not by others.

The consensus in the literature is that OR is an important dependent variable because without opportunities being recognized, there will not

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be entrepreneurship (Shane & Venkataraman, 2000). Indeed, the subjectivity or objectivity of opportunities has been questioned as scholars continue to debate on whether entrepreneurial opportunities are created or discovered (Davidsson, 2017; González, Husted, & Aigner, 2017; Wood, 2017). In other words, are opportunities objective phenomena, which exist for all regardless of individual differences or do individual differences lead to subjective opportunities being identified? Yet, Shane and Venkataraman (2000) suggest that although opportunities themselves are objective, the process through which they are identified is subjective, making the subjective examination of OR relevant.

We theorize that aspiring entrepreneurs' internal locus of control will associate with both a higher entrepreneurial intention and OR because internal locus individuals may be predisposed to perceive their environment positively as well as prefer challenging activities (Judge, Locke, & Durham, 1997; Wang et al., 2010). In contrast, aspiring entrepreneurs' external locus of control is expected to associate with both a lower entrepreneurial intention and OR because external locus individuals are more susceptible to perceive their environment negatively and are less likely to engage in challenging tasks (Ng et al., 2006). Further, extending the self-efficacy literature (McGee, Peterson, Mueller, & Sequeira, 2009) based on this context, it can be reasoned that, ESSE, which is an individual's ability to develop ideas about/identify opportunities, will moderate the core entrepreneurial intention - OR relationship.

The current study makes three major contributions to existing research and theory by empirically investigating how the perception of control influences OR. First, the study expands research on locus of control by examining whether aspiring entrepreneurs' locus of control affects their proclivity for OR. The study addresses the gap left by others that have failed to consider aspiring entrepreneurs, instead devoting their attention exclusively to those that are established (Grégoire et al., 2010; Hsiao, Lee, & Chen, 2016).

Similarly, we extend research on entrepreneurship by demonstrating the significance of locus of control as a psychological attribute that affects entrepreneurial decision-making. Studies linking personality variables to human behavior have included variables such as the Big Five personalities, self-esteem, core self-evaluation and regulatory focus (Erez & Judge, 2001; Judge et al., 2002). These variables have been identified as having a significant independent influence on behavior. Again, they suggest that individual motivational attributes have a profound effect on behavior (Erez & Judge, 2001). This means that locus of control, which is a powerful motivational variable (Ng et al., 2006), has the potential to be an important driver of individual's entrepreneurial behavior (Ang & Hong, 2000). In addition, locus of control is different from other personality variables (Ng et al., 2006; Wang et al., 2010) as it relates to the perception of behavioral consequences and it is therefore, likely to have a more proximal impact on OR.

Third, we draw on the social cognitive theory (Bandura, 1989) and the extant entrepreneurial self-efficacy literature to test ESSE (McGee et al., 2009) as a moderator for the entrepreneurial intention - OR relationship. In extending previous studies (Baron, Mueller, & Wolfe, 2016; McGee & Peterson, 2017), we show how important it is for people to believe in their ability to search for opportunities. Thus, by focusing on ESSE and in tandem with the focus of the current study on OR, we examine how people's belief in their ability to search for opportunities differentially affect internal and external locus of aspiring entrepreneurs.

2. Theory and hypotheses

2.1. Entrepreneurship as a career choice: the importance of entrepreneurial opportunities

Entrepreneurial opportunities are the means to bring into existence new goods and services as well as new methods of production, which

have the potential for profit-making (Shane, 2000). OR on the other hand, is the identification of a chance of how a combination of resources may lead to profit generation (Nicolaou, Shane, Cherkas, & Spector, 2009). Entrepreneurial opportunities are a necessary component of the entrepreneurial career. According to Shane and Venkataraman (2000), without entrepreneurial opportunities, there cannot be any entrepreneurship.

While entrepreneurship as a science of inquiry has received a considerable amount of research, most of these studies have come from the angle of founding and managing a venture (Burton, Sørensen, & Dobrev, 2016). In comparison, only a few studies (e.g., Carter, Gartner, Shaver, & Gatewood, 2003; Thébaud, 2010) have looked at entrepreneurship as a career decision even though research shows that people make the decision to become entrepreneurs (Thébaud, 2010). Due to the immense benefit of entrepreneurship in innovation and economic development (Reynolds, Carter, Gartner, & Greene, 2004), it is understandable why considerable attention has been given to entrepreneurship as an outcome. However, doing so only provides a partial view of what makes entrepreneurship similar and/or different from other occupations.

Career decision research has consistently sought to answer “why” people choose a particular occupation over others. According to Jaskiewicz, Luchak, Oh, and Chlosta (2016), such question exists where there is a prevalence of career indecision and where there is a boundaryless career. Past research has relied on personality variables especially the Big Five taxonomy (Antoncic, Bratkovic Kregar, Singh, & DeNoble, 2015) and the three types of motivation (intrinsic, extrinsic and altruistic) (Watt & Richardson, 2007) to explain career choices. In entrepreneurship career studies, most of these variables have been examined in connection with entrepreneurial intention (Schlaegel & Koening, 2014), the startup process (Antoncic et al., 2015; Korunka, Frank, Lueger, & Mugler, 2003) and the type of entrepreneurial firm founded (Leutner, Ahmetoglu, Akhtar, & Chamorro-Premuzic, 2014) but less on entrepreneurial opportunity and how it is recognized. As such, it is important that as scholars try to understand entrepreneurship as a career choice, much attention needs to be given to how entrepreneurial opportunities are recognized. This is because the ability to identify entrepreneurial opportunities is likely a predictor of choosing entrepreneurship as a career (Nicolaou et al., 2009).

2.2. Locus of control and opportunity recognition

Locus of control is very important in shaping how an individual perceives the environment. While locus of control has motivational inclinations, it goes beyond just motivating people (Zigarmi et al., 2018). Locus of control is concerned more with who or what controls an individual's outcomes (Deci & Ryan, 1985). Individuals with an internal locus of control have a high tendency to believe that their actions influence rewards or outcomes (Mueller & Thomas, 2001). As such, they are more likely to believe in their skills, effort, and abilities. Such people tend to face problems and obstacles positively by using constructive solutions (Luthans, Avey, Avolio, Norman, & Combs, 2006). They, therefore, show higher levels of achievement and exhibit the willingness to learn and enhance their knowledge and capabilities (Hsiao et al., 2016). It follows then, that this belief in their effort or abilities (Mueller & Thomas, 2001) to influence outcomes will make them more proactive and alert to entrepreneurial opportunities. In contrast, individuals with an external locus of control believe that their rewards are beyond them (Hsiao et al., 2016). As such, they tend to ascribe personal rewards or outcomes to external factors such as luck (Ng et al., 2006). Hence, their ability to recognize opportunities may be impeded by their belief in luck rather than effort.

Therefore, we argue that locus of control will have a significant impact on how aspiring entrepreneurs look for opportunities. This is because aspiring entrepreneurs who perceive themselves as having control demonstrate alertness, confidence and persistence in pursuit of

goals (Ng et al., 2006). These are critical elements that have been shown to be very important in the OR process (Ardichvili et al., 2003). Additionally, these are characteristics exhibited by internal locus individuals and are likely to make them recognize more opportunities. Moreover, evidence in the literature shows that locus of control influences key aspects of the entrepreneurial process such as entrepreneurial intention (Krueger, 2017), motivating behavior (Mueller & Thomas, 2001), need for achievement in entrepreneurs and the startup process (Keh, Der Foo, & Lim, 2002).

H1. Aspiring entrepreneurs' internal locus of control positively relates to OR.

H2. Aspiring entrepreneurs' external locus of control negatively relates to OR.

2.3. The mediation effect of entrepreneurial intention

One important variable that can explain the effect of locus of control on aspiring entrepreneurs' OR is their entrepreneurial intention, which can determine to a large extent the direction and intensity of their entrepreneurial behaviors (Fayolle & Liñán, 2014). Entrepreneurial intention is defined as a person's desire to own a business or start an enterprise (Krueger, Reilly, & Carsrud, 2000). Intentions are understood in the literature as determinants of actual behavior (Ajzen, 1991). That is, once an intention is formed, actual behavior is expected. This argument has been supported by the extant literature. For example, in a meta-analysis of 422 studies, Sheeran (2002) found that about 28% of the variations in actual behavior was as a result of intention.

Similarly, in entrepreneurship, several studies have found a positive relationship between entrepreneurial intention and business formation (Kautonen, van Gelderen, & Tornikoski, 2013; Krueger et al., 2000). For example, Krueger et al. (2000) found that entrepreneurial intention was associated with higher entrepreneurial behaviors. Hence, the intention to become an entrepreneur has important implications in one's ability to recognize opportunities. As Gollwitzer (1999) puts it, intention could be a self-regulation strategy aimed at achieving a goal. As such, the intention to become an entrepreneur is expected to drive people's ambition and attention, which will make them alert to entrepreneurial opportunities.

On the other hand, the Theory of Planned Behavior (TPB) (Ajzen, 1991) is mostly used as the theoretical foundation for studies that explore intention formation (Kautonen et al., 2013; Schlaegel & Koenig, 2014). While the TPB constitutes an appropriate lens for the study of intention formation, utilization of the locus of control for examination of this phenomenon is more advantageous. This is because locus of control emphasizes the perception of an individual's ability to influence the outcome of a behavior (Hsiao et al., 2016). Thus, locus of control may provide a more proximal influence on people's intention to act (Esfandiar, Sharifi-Tehrani, Pratt, & Altinay, 2019; Espiritu-Olmos & Sastre-Castillo, 2015). Consistent with this position, previous studies have found that internal and external locus of control have a differential influence on entrepreneurial intention. For instance, in a study of Singaporeans, Ang and Hong (2000) found internal locus of control to be a determinant of entrepreneurial intention. In addition, Gürol and Atsan (2006) also found that higher internal locus of control was related to business startup intentions. Based on these discussions, we argue that entrepreneurial intention provides the underlying mechanism through which internal and external locus of control influence OR. Thus, we expect internal locus individuals to have a higher desire to start their own businesses (Ajzen, 1991; Esfandiar et al., 2019), which will in turn make them more alert to OR. On the contrary, we expect external locus individuals to have a lower desire to start their own firms because they don't believe that they have any influence on their outcomes and rewards (Espiritu-Olmos & Sastre-Castillo, 2015). This will in turn make them less proactive and alert to OR.

H3. Entrepreneurial intention mediates the positive relationship between aspiring entrepreneurs' internal locus of control and OR.

H4. Entrepreneurial intention mediates the negative relationship between aspiring entrepreneurs' external locus of control and OR.

2.4. Entrepreneurial searching self-efficacy as a moderator

Self-efficacy has received tremendous attention from scholars because of its importance in task achievement. Entrepreneurial self-efficacy is the extent to which an individual believes in his/her ability to undertake entrepreneurial activities (Krueger & Dickson, 1994). Entrepreneurial self-efficacy is very important in the decision an individual makes to choose entrepreneurship as a career. It has been found to be associated with a high entrepreneurial entry in 42 countries (Wennberg, Pathak, & Autio, 2013) and positively related to performance (Hmieleski & Baron, 2008). Similarly, startup founders who were more efficacious were found to have a significant positive impact on their firms' performance (McGee & Peterson, 2017).

The concept of entrepreneurial self-efficacy is domain specific, that is, a person may be efficacious in one entrepreneurial task but not in the other (Bandura, 1977). Consistent with this assertion, McGee et al. (2009) conceptualized entrepreneurial self-efficacy as having five task-specific dimensions. These dimensions are searching, planning, marshaling, implementing-people and implementing-financial. The dimension that best captures entrepreneurial intention and OR is searching self-efficacy, which is the development of an entrepreneurial idea and the identification of entrepreneurial opportunities (McGee et al., 2009). We focus on only ESSE, as it best captures the focus of the current study.

Consistent with previous studies (McGee & Peterson, 2017; Wennberg et al., 2013), we argue that the effect of people's entrepreneurial intention on OR will depend on their ESSE. A component of the notion of self-efficacy is the perception of ability (McGee & Peterson, 2017), this perception affects both our affect and behavior. Thus, positive perception of people's abilities changes their mind's eye to see certain activities in a positive manner. Therefore, we posit that ESSE will interact with entrepreneurial intention in predicting OR. While we believe that entrepreneurial intention influences OR positively, this effect will be strengthened (McGee & Peterson, 2017; Wennberg et al., 2013) if the individual believes in his/her ability to perform searching activities. Thus, for those who believe in their ability to search for opportunities (Lu, Xie, & Guo, 2018), we expect entrepreneurial intention to have a stronger effect on OR. This is because according to the social cognitive theory (Bandura, 1989), self-efficacy beliefs act as a critical predictor of human behavior and action. Hence, we argue that aspiring entrepreneurs who have higher ESSE will have a stronger motivation to pursue opportunities, resulting in a stronger effect of entrepreneurial intention on OR. Our theoretical model is depicted in Fig. 1.

H5. ESSE moderates the positive relationship between aspiring entrepreneurs' entrepreneurial intention and OR such that the relationship is stronger when ESSE is high.

Connecting the mediation effects to the moderating effects of ESSE, the following are hypothesized:

H6a. ESSE moderates the positive relationship between aspiring entrepreneurs' internal locus of control and OR through entrepreneurial intention such that the relationship is stronger when ESSE is high.

H6b. ESSE moderates the negative relationship between aspiring entrepreneurs' external locus of control and OR through entrepreneurial intention such that the relationship is weaker when ESSE is high.

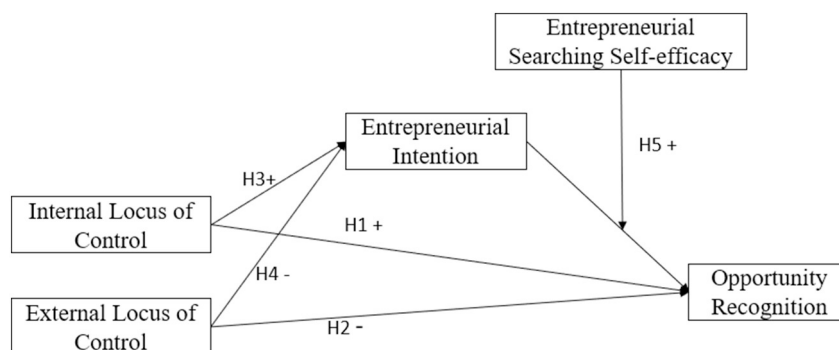


Fig. 1. Theoretical model.

3. Method

3.1. Participants and procedures

We recruited aspiring entrepreneurs, that is, individuals who have expressed their desire and willingness to become entrepreneurs, in the capital city of Ghana with the help of liaisons. We selected an employee with the help of a middle level manager and asked him/her to volunteer as a liaison after he/she had agreed to our selection. The liaison then informed and recruited their colleague employees as participants for this study based on our definition of aspiring entrepreneurs. The liaisons also coordinated the survey distribution and collection from their colleagues. We coached them on how to identify participants and assure them of the confidentiality of their responses. The participants were drawn from banking, insurance, manufacturing and educational institutions and included workers, unemployed participants as well as final year university students. While it is easy to understand why final year students and the unemployed participants may choose entrepreneurship as a career, research also shows that employees can sometimes get involved in entrepreneurship (Folta, Delmar, & Wennberg, 2010). We focused on aspiring entrepreneurs because their situation provides a better context for studying the entrepreneurial intention and OR constructs. They are now looking for entrepreneurial opportunities and therefore are likely to have a heightened entrepreneurial intention and alertness for opportunities. Using a sample of aspiring entrepreneurs also reduces the retrospective bias often associated with established entrepreneurs in OR studies (Grégoire et al., 2010).

We focused on aspiring entrepreneurs in Ghana because in the past few years, Ghana has been making a steady economic progress, culminating with a gross domestic products (GDP) growth rate of 8.5% in 2017 (World Bank, 2018). This made Ghana one of the fastest growing economies in the world in 2017 (World Bank, 2018). Despite this success, the economy still faces challenges because of its inability to absorb the numerous graduates being churned out yearly. This has led successive governments to advocate for entrepreneurship among the citizenry with the establishment of many entrepreneurial promoting agencies such as National Entrepreneurship and Innovation Plan (NIEP) and Microfinance and Small Loans Centre (MASLOC). The main purpose of these agencies is supporting startups and small businesses. This makes Ghana an ideal place for studying aspiring entrepreneurs.

Data were collected in two waves to minimize the effect of common method variance (Podsakoff, MacKenzie, & Podsakoff, 2012). This temporal separation of the measurement of the predictor and criterion variables reduces retrieval effect, which may lead to social desirability and priming effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Because intention does not necessarily mean actual willingness to engage in a behavior, four initial questions were asked in Time 1 that sought to find out how willing participants were in looking for opportunities after they had been interviewed by the liaisons. The four initial

questions and a confidentiality statement were on the first page of the Time 1 survey. The questions are: 1. Do you have any intention to be self-employed at all? 2. Do you wish to become self-employed as soon as practicable? 3. Have you started looking for self-employment opportunities? 4. I don't have a business of my own yet. For a participant to be included in the final analysis, they had to answer "yes" to all 4 initial questions. At Time 1, the liaisons identified and distributed the first survey to 351 respondents. The questionnaire included demographics, locus of control, entrepreneurial intention and ESSE items. A total number of 336 (95.72%) completed questionnaires were returned.

At Time 2 (a month interval), OR items were distributed by the liaisons to the 336 participants who responded to the Time 1 survey. A total number of 295 completed surveys were received. We sorted and matched responses after the Time 2 survey has been received. Surveys with large numbers of missing data and 30 participants who did not answer all the four initial questions in the affirmative were removed. These respondents were removed from the final analysis, leaving us with a Time 1 and 2 completed and matched surveys of 270 (76.92%). Of the 270 matched responses, 60% were males, 46% had qualifications equivalent to bachelor's degree. The average age and work experience were 31 and 10 years respectively. A total of 59% were parents. Table 1 presents the background information of the final sample.

3.2. Measures

3.2.1. Internal locus of control

A four-item measure developed by Mueller and Thomas (2001) was used to capture internal locus of control. A sample of item is "When I get what I want, it is usually because I worked hard for it". It had a Cronbach's alpha of 0.90. Responses ranged from 1 (strongly disagree) to 7 (strongly agree).

3.2.2. External locus of control

External locus of control was measured using six items developed by Mueller and Thomas (2001). A sample of item is "Success in business is

Table 1 Background characteristics of the final respondents.

	Demographic variables	Frequency	Percentage
Gender	Male	162	60%
	Female	108	40%
Education	Bachelor's degree	125	46%
	Master's degree	76	28%
	PhD	16	6%
	Others	53	20%
Parenthood	Parents	158	59%
	Non-parents	112	41%
Age	Average:	31 years	
Job experience	Average:	10 years	
Startup timing	Average:	5 years	

N = 270.

Table 2
Descriptive statistics and correlations.

Variables	Mean	Std. deviation	1	2	3	4	5
1. Internal locus of control	5.28	1.52	0.90				
2. External locus of control	5.54	1.43	0.05*	0.95			
3. Entrepreneurial intention	5.05	1.22	0.48**	−0.25**	0.84		
4. Entrepreneurial searching self-efficacy	5.44	1.43	0.10	0.59**	−0.24**	0.87	
5. Opportunity recognition	4.94	1.25	0.40**	−0.19**	0.49**	−0.19**	0.79

$N = 270$.

Cronbach's alpha coefficients are shown in boldface on the diagonal.

* $p < .05$.

** $p < .01$.

mostly a matter of luck". It had a Cronbach's alpha of 0.95. Responses ranged from 1 (strongly disagree) to 7 (strongly agree).

3.2.3. Entrepreneurial intention

A five-item scale was used to measure people's intention to engage in entrepreneurial behaviors. Four items were drawn from Zhao, Seibert, and Hills (2005). A sample of item is "How interested are you in starting a new business?" Responses ranged from 1 (very little interest) to 7 (a great deal of interest). One more item was drawn from Shinnar, Giacomini, and Janssen (2012). The item was "Have you ever thought of starting a business." Responses ranged from 1 (no, never) to 7 (yes, always thinking about it). Together, the five items had a Cronbach's alpha of 0.84.

3.2.4. Entrepreneurial searching self-efficacy

A three-item scale developed by McGee et al. (2009) was used to capture individuals' confidence in their ability to search for entrepreneurial opportunities. A sample of item is "How much confidence do you have in your ability to brainstorm (come up with) a new idea for a product or service." Responses ranged from 1 (very little) to 7 (very much). It had a Cronbach's alpha of 0.87.

3.2.5. Opportunity recognition

A five-item scale developed by Nicolaou et al. (2009) was used to measure individuals search for entrepreneurial opportunities in the past month. A sample of item is "In the past month, I frequently identified opportunities to startup new businesses." Responses ranged from 1 (strongly disagree) to 7 (strongly agree). It had a Cronbach's alpha of 0.79. A Self-reported measure was used to assess OR because of the difficulty in obtaining objectively, the number of opportunities identified in one month. All our variables had a Cronbach's alpha above the recommended threshold of 0.70 (Nunnally & Bernstein, 1994).

3.2.6. Control variables

Consistent with previous studies, age (Lévesque & Minniti, 2006), gender (Thébaud, 2010), education (Schulz, Urbig, & Procher, 2016), job experience, and parenthood (Jack & Anderson, 2002) were controlled. Past research has identified these variables as influencing career decisions in general and entrepreneurial behavior specifically (Lévesque & Minniti, 2006; Thébaud, 2010). Apart from having entrepreneurial intention, the time people expect to launch their ventures can influence their alertness to entrepreneurial cues (Ardichvili et al., 2003). That is, the one who expects to launch a firm in a year's time will be more alert to entrepreneurial cues than those thinking of entrepreneurship in the distant future. Therefore, startup timing was controlled by asking participants "how many years will it take before you launch a firm?"

4. Results

4.1. Confirmatory factor analyses

A Confirmatory Factor Analysis (CFA) was first conducted. Following Hu and Bentler's (1999) two-index strategy, Comparative Fit Index (CFI) and Standardized Root Mean Square Residual (SRMR) were calculated. CFI values of 0.90 or above and SRMR values of 0.08 or below indicates acceptable fit. The default five-factor model of internal and external locus of control, entrepreneurial intention, ESSE and OR had an acceptable fit [χ^2 ($df = 220, N = 270$) = 535.52, CFI = 0.93, SRMR = 0.05]. The default five-factor model is better than a four-factor model that has internal and external locus of control items combined as one [χ^2 ($df = 224, N = 270$) = 1288.98, CFI = 0.76, SRMR = 0.16] as well as a four-factor model that has ESSE and entrepreneurial intention items combined [χ^2 ($df = 224, N = 270$) = 1059.54, CFI = 0.81, SRMR = 0.15]. The default 5-factor model was also better than a single factor model [χ^2 ($df = 230, N = 270$) = 2102.13, CFI = 0.57, SRMR = 0.21]. These results support the discriminant validity of the measurement variables. In both confirmatory factor and model analyses, Mplus 7.4 was used. Additionally, SPSS version 21 was used to estimate descriptive statistics and correlations. Table 2 presents the means, standard deviations, reliabilities and correlations of the variables.

4.2. Hypotheses testing

4.2.1. Test of the mediation path model

In testing the hypotheses, two models were considered with the composite scores of the average of items for each research variable. Observed variables rather than latent variables were used in order to allow for fit indices for model comparison purposes and to simplify the analyses. A mediation only model was considered in model 1 and a moderated mediation model in model 2 by including the moderating effects of ESSE. In the mediation model, both the direct and indirect effects of internal and external locus of control on OR through entrepreneurial intention were specified. For control variables, age, gender, education, job experience, startup timing and parenthood were regressed on both the mediator and outcome variable. Because this model is saturated, it has a perfect fit with zero degrees of freedom [χ^2 ($df = 0, N = 270$) = 0, CFI = 1.00, SRMR = 0.00]. Results show that internal locus of control was positively related to OR ($B = 0.45, p < .01$), which supports H1. In support of H2, external locus of control was negatively related to OR ($B = -0.45, p < .01$). These results are shown in Table 3.

Analyses of collected data revealed that H3 and H4 were supported. In support of H3, entrepreneurial intention mediated the positive relationship between internal locus of control and OR (indirect effect = 0.15, 95% Bias-corrected confidence intervals (BC CI) = [0.09, 0.21]). In support of H4, entrepreneurial intention mediated the negative relationship between external locus of control and OR (indirect effect = −0.10, 95% BC CI = [−0.15, −0.05]). Bias-corrected

Table 3
Unstandardized estimates (standard error) of the mediation path model.

	Entrepreneurial intention	Opportunity recognition
Independent variables		
Internal locus of control	0.43** (0.06)	0.45** (0.07)
External locus of control	-0.28** (0.05)	-0.45** (0.06)
Mediator		
Entrepreneurial intention		0.35** (0.08)
R ²	0.31	0.51*

* $p < .05$.
** $p < .01$.

Table 4
Unstandardized Estimates (Standard Error) of the Moderated Mediation Path Model.

	Entrepreneurial intention	Opportunity recognition
Independent variables		
Internal locus of control	0.43** (0.05)	0.47** (0.06)
External locus of control	-0.28* (0.06)	-0.34** (0.14)
Mediator		
Entrepreneurial intention		0.30** (0.07)
Moderating effects		
Entrepreneurial searching self-efficacy (ESSE)		-0.15 (0.13)
Entrepreneurial intentions X entrepreneurial searching self-efficacy		0.16* (0.08)
R ²	0.31	0.51

* $p < .05$.
** $p < .01$.

confidence intervals were calculated with 5000 bootstrap samples. Results for the indirect effects are shown in Table 5.

4.2.2. Test of the moderated mediation path model

Next, in the second model (see unstandardized estimates in Table 4), ESSE was included as a moderator and an interaction effect between entrepreneurial intention and ESSE was introduced to predict OR. The interacting variables of entrepreneurial intention and ESSE were

centered prior to being interacted. The rest of the model's specification is exactly the same as that in the mediation model. The model had an acceptable fit [χ^2 ($df = 2, N = 270$) = 28.90, CFI = 0.91, SRMR = 0.03]. This model was compared with a similar model, which had its interaction term fixed to zero to be sure if the moderated mediation model is better [χ^2 ($df = 3, N = 270$) = 33.50, CFI = 0.90, SRMR = 0.03]. A chi-square difference test was significant ($\Delta\chi^2 = 4.6, df = 1, p < .05$) suggesting that the model with an interaction effect was better.

Analyses of data revealed that H5 was supported. In support of H5, there was a statistically significant interaction between entrepreneurial intention and ESSE on OR ($B = 0.16, p < .05$). The simple slope tests show that the effect of entrepreneurial intention on OR was not significant for aspiring entrepreneurs who reported low ESSE (simple slope = 0.11, $p > .10$) but was positive and significant for those who reported high ESSE (simple slope = 0.49, $p < .01$). To ascertain the interaction patterns, the relationship between entrepreneurial intention and OR was plotted at high and low values of ESSE, defined as one standard deviation above and below the mean value, respectively (Cohen, Cohen, West, & Aiken, 2003) (see Fig. 2).

The analyses also show that H6a and H6b were supported. In support of H6a, the index of moderated mediation (Hayes, 2015), that is, the product term of the interaction effect between entrepreneurial intention and ESSE on OR and the direct effect between internal locus of control and entrepreneurial intention was statistically significant (index = 0.07, $p < .05$). As shown in Table 5, the conditional indirect effects of internal locus of control on OR through entrepreneurial intention was not significant ($B = 0.05, 95\% \text{ BC CI} = [-0.03, 0.13]$) when ESSE is low but was significant ($B = 0.21, 95\% \text{ BC CI} = [0.12, 0.30]$) when ESSE is high, supporting H6a.

In support of H6b, the conditional indirect effect of external locus of control on OR through entrepreneurial intention was statistically significant (index = -0.05, $p < .05$). As shown in Table 5, the conditional indirect effects of external locus of control on OR through entrepreneurial intention was significant ($B = -0.14, 95\% \text{ BC CI} = [-0.21, -0.07]$) when ESSE is low but was not significant ($B = -0.03, 95\% \text{ BC CI} = [-0.09, 0.03]$) when ESSE is high, supporting H6b. All of the study's hypotheses were supported.

We further conducted power analyses using G*Power to test the statistical power of the study's results (Faul, Erdfelder, Lang, & Buchner,

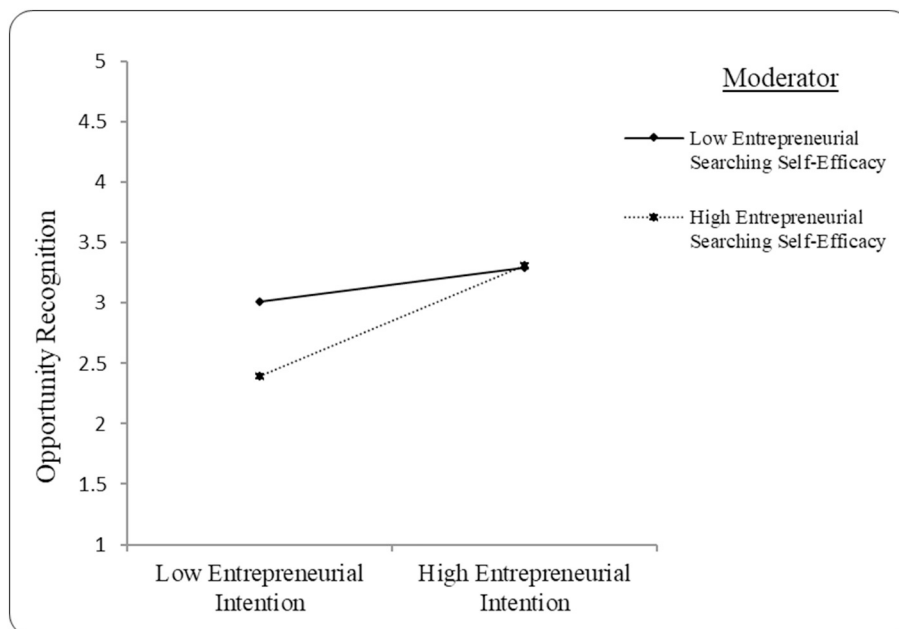


Fig. 2. The interaction effect between entrepreneurial intention and entrepreneurial searching self-efficacy on opportunity recognition.

Table 5
Unstandardized estimates (standard error) of the mediation and moderated mediation effects.

	Indirect effects (S.E.)	95% BC CI
Mediation		
Internal locus → entrepreneurial intention → opportunity recognition	0.15 (0.04)	0.09, 0.21
External locus → entrepreneurial intention → opportunity recognition	−0.10 (0.03)	−0.15, −0.05
Moderated mediation index		
Internal locus → entrepreneurial intention → opportunity recognition		
Moderated mediation index	0.07 (0.03)	0.02, 0.13
Low searching self-efficacy	0.05 (0.05)	−0.03, 0.13
High searching self-efficacy	0.21 (0.06)	0.12, 0.30
External locus → entrepreneurial intention → opportunity recognition		
Moderated mediation index	−0.05 (0.02)	−0.08, −0.01
Low searching self-efficacy	−0.14 (0.04)	−0.21, −0.07
High searching self-efficacy	−0.03 (0.03)	−0.09, 0.03

Note: $N = 270$. Unstandardized regression coefficients are reported, with standard errors in parentheses. Bootstrap sample size = 5000.

2007). For entrepreneur intention, the results revealed that there is an 81% chance that the R^2 value significantly differ from zero considering the total participants for the current study. For OR, the power analyses results revealed that there is an 80% chance that the R^2 value significantly differ from zero considering the total sample for this study.

5. Discussion and conclusion

The current study examines a moderated mediation effect of locus of control on OR via entrepreneurial intention. The two-wave survey data from aspiring entrepreneurs provided strong support for the study's hypotheses. Internal locus of control and external locus of control had a positive and a negative relationship with OR, respectively. These positive and negative relationships were mediated by entrepreneurial intention. ESSE moderated the direct relationship between entrepreneurial intention and OR as well as the positive and negative indirect effects of internal locus of control and external locus of control on OR.

In sum, the results of the current study showed that aspiring entrepreneurs with an internal locus of control are more likely to recognize entrepreneurial opportunities. In addition, entrepreneurial intention provided a mechanism through which the positive and negative relationships of internal and external locus of control affect OR, respectively. These relationships were moderated by ESSE. This study contributes to explicating how individual differences influence OR among aspiring entrepreneurs.

5.1. Theoretical and practical implications

By examining a moderated mediation effect of locus of control on OR, the findings provide a number of theoretical and practical contributions. First, the study provides a theoretical clarification as well as empirical evidence for how and when internal and external locus of control affects OR (Mueller & Thomas, 2001). It identified and tested the ability to recognize entrepreneurial opportunity as a behavioral consequence of aspiring entrepreneurs' locus of control (Ng et al., 2006). This extends previous research on personality variables that influence entrepreneurial behaviors such as recognizing entrepreneurial opportunity (Antoncic et al., 2015; Ardichvili et al., 2003; Korunka et al., 2003). Thus, by these findings, we exhibit that people's perception of control has an influence on key entrepreneurial behaviors, one of which is OR.

Second, consistent with the Social-cognitive theory (Bandura, 1989; McGee et al., 2009), the study found an interesting moderating role of ESSE. The positive relationship between entrepreneurial intention and OR as well as the positive indirect relationship of internal locus of control and OR through entrepreneurial intention strengthens when ESSE was high (McGee & Peterson, 2017; Wennberg et al., 2013). On the contrary, the negative indirect relationship between external locus

of control and OR through entrepreneurial intention weakens when ESSE was high (Bandura, 1989). This indicates that self-efficacy is important in the opportunity recognition process of aspiring entrepreneurs.

Third, by the study's sample, the current study reduces the retrospective biases that have bedeviled previous research on OR. Extant studies on entrepreneurial OR have consistently relied on a sample of established entrepreneurs (Baron & Ensley, 2006; Grégoire et al., 2010; Ozgen & Baron, 2007). This sample of established entrepreneurs may be influenced by their successful establishment of a firm in answering questions on OR rather than their dispositions. In contrast, the current study relies on a unique sample of aspiring entrepreneurs, who are now seeking to become entrepreneurs and therefore may provide genuine dispositional responses.

Fourth, the findings concerning ESSE and locus of control have important practical implications for aspiring entrepreneurs. Theoretical underpinnings of self-efficacy have it that people who believe in their ability to undertake certain activities are more likely to be successful in those activities (McGee et al., 2009; McGee & Peterson, 2017; Wennberg et al., 2013). Therefore, it is prudent for aspiring entrepreneurs to believe in their ability to undertake OR activities. Additionally, state agencies such as enterprise support offices can rely on our ESSE finding to develop training activities that are geared toward enhancing confidence among aspiring entrepreneurs (Bandura, 1989). This will go a long way in enhancing their entrepreneurial self-efficacy toward their long-term goals to become entrepreneurs (Bandura, 1977).

5.2. Limitations and directions for future research

The current model was tested with a two-wave survey data, which reduces the chances of common method variance (Podsakoff et al., 2012). A structural equation method was also used, which allows the testing of all hypotheses in one model. However, even with these strengths, there still exist some limitations in the current study. First, we acutely focused on entrepreneurial OR. Future research is encouraged to go a step further to examine what happens after opportunities have been recognized.

Second, we conceptualized and measured OR as a behavioral outcome. Considering that people who aspire to become entrepreneurs could be teachers, students, engineers or bankers, it is likely that their entrepreneurial ambition will have an impact on their fulltime occupations as well. Thus, future research is encouraged to examine how such entrepreneurial aspirations affect both their fulltime occupation and entrepreneurial behavior, simultaneously. Third, while the current study used a subjective measure of OR (Nicolaou et al., 2009), future research could consider a more objective measure of OR such as employing experts to quantify in terms of value, the type of opportunity recognized.

Acknowledgements

We thank Associate Editor Domingo Ribeiro Soriano and the two anonymous reviewers for their guidance during the review process. An earlier version of this article was presented at the 2018 AIBSEAR Conference in Hong Kong.

Declarations of interest

We have no conflict of interest to declare.

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