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Key Determinants of Women's Entrepreneurial Intention and Behavior: The Role of Business Opportunity Recognition and Need for Achievement

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Abstract: The focus of this study is to investigate the major factors influencing entrepreneurial intent and behavior, by addressing the role of entrepreneurial education, business opportunity recognition, and the need for achievement. The research data were collected online using a self-administered questionnaire among 148 Moroccan women having completed an entrepreneurship training program. The data analysis using a PLS-SEM provided evidence of the positive impact of entrepreneurial education on entrepreneurial self-efficacy and PBC. Likewise, the findings supported the direct impact of subjective norms and entrepreneurial self-efficacy on entrepreneurial attitude. Furthermore, entrepreneurial attitude, business opportunity recognition, and the need for achievement were identified as predictors of entrepreneurial intent, leading to enhanced entrepreneurial behavior. These results highlight a number of useful practical recommendations for public policy-makers on how to stimulate and encourage entrepreneurship initiatives among women.

Keywords: Morocco; entrepreneurship; entrepreneurial education; self-efficacy; opportunity recognition; need for achievement

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1. Introduction

In the last few years, entrepreneurship research has been growing, by continuing to attract the interest of academics, professionals, and public authorities. This importance given to the area of entrepreneurship is motivated by its direct involvement in improving social impact indicators, leading to economic growth (Urbano et al. 2019).

Entrepreneurship combines both an initiator (an individual bearing an idea to start a business) and an organization location for the launching and development of the business (Roundy et al. 2018). In addition, the public administration's role in this process must be taken into account (Sendra-Pons et al. 2022).

Recognizing that entrepreneurship is essential for creating value and growing the country's economy, Morocco considers promoting entrepreneurial activity as a national challenge to achieve a successful, inclusive, and transforming development model (El Ouazzani Ech Chahdi 2018). Accordingly, Moroccan policy-makers have launched several plans to promote entrepreneurship. Undoubtedly, the Moroccan government has made considerable achievements in promoting entrepreneurship, in terms of training, accompaniments, and funding. Likewise, the government intends to achieve a high level of growth with no form of exclusion, which involves providing an integrated accompaniment program for anyone interested in starting a new business, by implementing efficient and innovative regional accompaniment ecosystems in the context of a post-COVID-19 recovery (OIT 2021).

To enable easy access to the whole spectrum of public offers of support to entrepreneurs, the Moroccan Ministry of the Economy, Finance and Administration Reform was launched

in December 2020 as the national portal to support entrepreneurship. This portal consolidates e-links to relevant institutions and platforms related to entrepreneurial ecosystems, as well as offers a plethora of information and services designed exclusively for entrepreneurs, including a schedule of key entrepreneurial events, business news, FAQs, and a glossary of entrepreneurial terms. Alongside this national platform, several governmental and private initiatives have been launched, such as INJAZ Al-Maghrib, Startup Morocco, and many other programs.

Special attention is devoted to promoting female entrepreneurship through several public policies and private initiatives, including the national integrated program for the economic empowerment of women "Morocco-Attamkine program", which focuses on reinforcing the institutional framework which promotes empowerment and develops economic opportunities for women and girls. Another initiative is related to Women in Business representing the leading independent Moroccan digital information website devoted to women's entrepreneurship. This platform aims to promote female entrepreneurship in all of its different aspects, by meeting the needs of Moroccan women regarding information requests and specific accompaniments. Hence, Morocco considers promoting female entrepreneurship and women's economic inclusion as a key national priority to foster harmonious and inclusive growth (Naguib 2022).

Notwithstanding these ambitious programs for promoting female entrepreneurship in Morocco, the entrepreneurship remains a less attractive option when compared to the salary career path. The statistics reveal that worldwide women are being increasingly attracted to start a business; over 33% of active women in business are female entrepreneurs (OIT 2017). Nevertheless, the number of women entrepreneurs in the North Africa region remains lower than the average in other countries.

As a Muslim and patriarchal society, the Kingdom of Morocco has one of the lowest rates of gender equality in entrepreneurship; therefore, only 12 percent of entrepreneurs are women (Diani and Aligod 2021).

This low rate of women's entrepreneurial activity is due to the existence of stereotypes regarding women's abilities, identified as the biggest barrier to female entrepreneurship in Morocco (Laffineur et al. 2018). Notwithstanding government policies and private programs promoting women's entrepreneurship in Morocco, women's entrepreneurship remains largely untapped as a lever for growth, especially due to limited financial access. In other words, while funding offers and business start-up programs are widespread, their use by Moroccan women remains low.

To deal with this challenge, we need to recognize factors that foster women's entrepreneurial intentions and behavior in Morocco in order to orient stakeholders involved in female entrepreneurship ecosystems (public administrations, associations, NGOs, etc.) to set up suitable strategies for training and accompaniments in this category of society.

Women's entrepreneurship represents a strategic focus and driver for women's business empowerment and development in several countries (Naguib 2022). Although women's entrepreneurship remains a strategic concern, the number of studies that have addressed this topic has been limited (Welsh et al. 2017). Therefore, the determinants of women's entrepreneurial intention and behavior have not seemed to be fully explored.

Several studies have tackled the obstacles (Raghuvanshi et al. 2017; Tripathi and Singh 2018) and motivating factors of women's entrepreneurship (Nguyen et al. 2020). In light of this preponderance of research, we can note a lack of literature that has examined the role of entrepreneurial education, opportunity recognition, and the need for achievement in shaping women's entrepreneurial intention and behavior.

In the literature, there is a very limited corpus of literature studying the association between enterprising intention and behavior (Gieure et al. 2020; Kautonen et al. 2015; Sharahiley 2020). This means that most past studies mobilized the TPB to predict entrepreneurial intent regardless of individual behavior. Therefore, the present study provides a key insight when mobilizing Ajzen's TPB for predicting both entrepreneurial intention and entrepreneurial behavior. Accordingly, the current study is in line with the

recommendations of previous work that has called for testing the TPB model by considering the entrepreneurial process and the link between intentions and behavior (Lortie and Castogiovanni 2015; Fayolle and Liñán 2014). Similarly, we also included three factors into the TPB model, which are entrepreneurial education, business opportunity recognition, and the need for achievement.

The main objective of the current study remains to explore the major factors influencing women's entrepreneurial intent and their entrepreneurial behavior, by addressing the role of business opportunity recognition and the need for achievement. Therefore, the principal research questions of the current study are as follows: Do entrepreneurial education and entrepreneurial self-efficacy enhance entrepreneurial intent and behavior? Do business opportunity recognition and the need for achievement affect women's entrepreneurial intentions?

To address these research questions, the present paper is structured into five sections. The next one outlines the state of art in the area of entrepreneurship to justify the chosen hypotheses. In Section 3, the methodological approach followed is described. Next, the results are reported. Discussions are outlined in Section 5. In the last section, the main conclusions, and the study implications are outlined, as well as some recommendations for further research.

2. Theory and Research Model

The aim of this first section is to bring up a critical review on previous research regarding factors susceptible to induce individuals' entrepreneurial intention and behavior, by targeting empirical studies which have employed Ajzen's theory of planned behavior as a theoretical framework.

2.1. Theory of Planned Behavior (TPB) and Entrepreneurship Studies

Ajzen's TPB is based on the principle that an individual's intent predicts his/her upcoming behavior (Ajzen 1991). Additionally, the intention, which reflects the efforts that the individual plan to perform this behavior (Entrialgo and Iglesias 2016), depends on three-fold determinations, including behavioral attitudes, subjective norms, and perceived planned behavior. Attitudes refer to the evaluations that people make about the likely consequences of their actions. They are based on a person's beliefs about how engaging in a particular behavior will affect their outcomes and the outcomes of others. Subjective norms refer to the perceived social pressure to engage in a particular behavior. They are based on the belief that a person's peers, family, and community expect them to engage in a certain behavior (Ajzen 1991). Perceived behavioral control (PBC) refers to a person's belief in their ability to successfully perform a behavior. It is based on a person's experiences, skills, and resources, as well as the perceived availability of those resources.

The TPB has been widely employed in identifying determinants of entrepreneurial intention (Schlaegel and Koenig 2014). In accordance with this theory, a person's attitude toward entrepreneurship, subjective norms, and perceived behavioral control over the entrepreneurial process all influence their intention to initiate a business. Attitudes toward becoming an entrepreneur describe the individual's assessment of the consequences of starting a new business (Liñán and Chen 2009). If they believe that the results of being an entrepreneur will be positive, they will be more inclined to start a new business. Subjective norms relate specifically to the social influence that a person may have to start a new business (Çera et al. 2022). If people in his/her social network support starting a venture, then he/she will be more susceptible to engaging in an entrepreneurial initiative. PBC is defined as a person's belief in their capabilities to build a new business (Liñán and Chen 2009). If the individual believes they have the skills, resources, and knowledge to start a business, they are more likely to start one.

Although the TPB identified intention as a driver of individual behavior, the investigation of the link between these two variables remained not fully exploited in the entrepreneurship field (Kautonen et al. 2013, 2015). Thus, the relevance of our study lies in

mobilizing the TPB for identifying factors that influence women's entrepreneurial intention and behavior, focusing especially on the role of entrepreneurial education, opportunity recognition, and the need for achievement.

2.2. The role of Entrepreneurial Education and Entrepreneurial Self-Efficacy

Entrepreneurial education is defined as "the process of providing individuals with the ability to recognise commercial opportunities and the insight, self-esteem, knowledge and skills to act on them. It includes instruction in opportunity recognition, commercialising a concept, marshalling resources in the face of risk, and initiating a business venture. It also includes instruction in traditional business disciplines such as management, marketing, information systems and finance" (Jones and English 2004, p. 416).

Entrepreneurial education has attracted considerable attention from entrepreneurship researchers (Zhang et al. 2022). Based on a systematic literature review, Motta and Galina (2023) identified a number of benefits of implementing experiential activities in entrepreneurship education, i.e., developing entrepreneurial knowledge, understanding the process of starting a business, improving the ability to work within a group, enhancing creativity, building problem-solving skills, enhancing planning and organizational skills, mastering opportunity identification mechanisms, increasing persuasiveness and networking skills, and generating more confidence and motivation to take risks. In the same vein, Boubker et al. (2022) confirmed that teaching entrepreneurship through learning-by-doing helps to enhance personal attitudes toward entrepreneurship and individual perceived entrepreneurial ability. Likewise, Wardana et al. (2020) supported the positive influence of entrepreneurial education on self-efficacy, entrepreneurial mindset, and entrepreneurial attitude. Furthermore, Yeh et al. (2021) argued that entrepreneurial education positively influences entrepreneurial self-efficacy. Hence, we suppose that:

H1. *Entrepreneurial education (ED) positively influences entrepreneurial self-efficacy (SE).*

H2. *Entrepreneurial education (ED) positively influences entrepreneurial attitude (AT).*

H3. *Entrepreneurial education (ED) positively influences PBC.*

Entrepreneurial self-efficacy is defined as an individual's self-confidence concerning their ability to launch a new venture and their conviction of possessing the required abilities to achieve this objective (Liu et al. 2019).

Several empirical studies confirmed the positive and direct impact of entrepreneurial self-efficacy on entrepreneurial attitude (Liu et al. 2019; Wardana et al. 2020) and PBC (Doanh 2021). In this regard, Wardana et al. (2020) showed that self-efficacy promotes individuals' entrepreneurial attitude. On the other hand, Liu et al. (2019) supported the idea that when individuals believe they possess the ability to perform and complete an entrepreneurial activity, they will have a more determined entrepreneurial attitude. Moreover, Doanh (2021) demonstrated that individuals with increased entrepreneurial self-efficacy can show an enhanced entrepreneurial attitude and PBC. Hence, we suppose that:

H4. *Entrepreneurial self-efficacy (SE) positively influences entrepreneurial attitude (AT).*

H5. *Entrepreneurial self-efficacy (SE) positively influences PBC.*

2.3. Relationships between Subjective Norms, Entrepreneurial Attitude, and PBC

A number of studies have mobilized the TPB for predicting entrepreneurial intention (Al-Qahtani et al. 2022; Lortie and Castogiovanni 2015). The findings of these studies have demonstrated the pertinence of the TPB for the field of entrepreneurship. Munir et al. (2019) asserted that the TPB serves as a valuable guideline in understanding students' entrepreneurial intent in emerging and developing countries. In sum, the previous studies confirmed the influence of attitude toward entrepreneurship, subjective norms, and perceived behavioral control on entrepreneurial intentions. However, the findings from the extant literature regarding the direct link between subjective norms and entrepreneurial in-

tention are comparatively inconsistent (Sun et al. 2017). While some scholars found a significant effect of subjective norms on entrepreneurial intention (Agolla et al. 2019; Baharuddin and Rahman 2021; Drakpa et al. 2022; Ferreira et al. 2012; Ruiz-Rosa et al. 2020; Shah et al. 2020), others denied this relationship (Barba-Sánchez et al. 2022; Boubker et al. 2021a, 2022; Dao et al. 2021; González-Serrano et al. 2021; Trivedi 2017; Usman and Yennita 2019).

As long as our research focuses on female entrepreneurship in a patriarchal society (Boubker et al. 2021b), we join the line of works that show an insignificant relation between subject norms and entrepreneurial intention. In this sense, González-Serrano et al. (2021) confirmed an insignificant influence of subjective norms on entrepreneurial intention. Dao et al. (2021) have also confirmed the non-effect of subjective norms on entrepreneurial intention.

According to a number of studies, subjective norms play a significant effect on entrepreneurial attitudes and PBC. For instance, Liñán (2008) affirmed the positive impact of subjective norms on personal attraction and PBC, which, in turn, enhance entrepreneurial intent. On the other hand, Sun et al. (2017) have empirically affirmed a significant influence of subjective norms on attitude, PBC, and intent toward entrepreneurship. More recently, Boubker et al. (2022) found that subjective norms did not explain entrepreneurial intention. In addition, they argued that social norms positively affect entrepreneurial attitude and entrepreneurial capacity, which helps to promote entrepreneurial intent. Hence, we propose the following hypotheses:

H6. *Subjective norms (SN) positively influence entrepreneurial attitude (AT).*

H7. *Subjective norms (SN) positively influence perceived behavioral control (PBC).*

2.4. The Effect of Entrepreneurial Attitude and PBC on Entrepreneurial Intention

A number of studies have pointed out the positive effect of entrepreneurial attitude and perceived behavioral control on entrepreneurial intention (Alam et al. 2019; Barba-Sánchez et al. 2022; Ruiz-Rosa et al. 2020). For instance, Trivedi (2017) confirmed a significant, positive, and direct effect of attitude toward behavior and PBC on entrepreneurial intention. Boubker et al. (2021b) confirmed that personal attitudes and entrepreneurial ability represent the most important determinant of women's entrepreneurial intent in a patriarchal society. In addition, Sun et al. (2017) also verified that entrepreneurial intention is influenced by attitudes and PBC. In the same line of idea, González-Serrano et al. (2021) supported the effect attitude towards startups and PBC on entrepreneurial intent.

By employing Ajzen's TPB, Usman and Yennita (2019) reported that personal attitude and PBC were potent predictors of entrepreneurial intention among international students in Turkey. These outcomes were also confirmed among female business students (Drakpa et al. 2022).

Furthermore, based on a data set collected from Spanish university students, Ruiz-Rosa et al. (2020) showed that perceived behavioral control and entrepreneurship attitude positively influence intent towards entrepreneurship. More recently, Barba-Sánchez et al. (2022) have empirically proved the direct and positive influence of perceived behavioral control and attitude toward entrepreneurship on the intention to start an entrepreneurial activity. According to these works, we propose the following hypotheses:

H8. *Entrepreneurial attitude (AT) positively influences entrepreneurial intention (IN).*

H9. *Perceived behavioral control (PBC) positively influences entrepreneurial intention (IN).*

2.5. The Role of Opportunity Recognition and the Need for Achievement

A business venture starts from an individual's readiness to convert an idea into a business opportunity (Hunter 2013). At this level, business opportunity recognition represents the input element of the business venture process. It refers to a process whereby a person discovers the opportunity to launch a new business activity (Shane 2003). It captures the individual's ability to explore multiple sources of information to build business

concepts (Hunter 2013). Therefore, opportunity recognition is largely based on whether the appropriate information is available (Shane 2003). In fact, individuals who successfully recognize a business opportunity are more likely to hold a higher level of entrepreneurial intention (Hassan et al. 2020). Through analyzing data collected from 247 students at private universities in Malaysia, Lim et al. (2021) revealed that students with a high competency in recognizing opportunities are interested in being entrepreneurs. The study conducted by Loan et al. (2021) during the COVID-19 period has confirmed the role of opportunity recognition in fostering students' entrepreneurial intent. More recently, Tian et al. (2022) found that business opportunity recognition, prior business experience, and entrepreneurial education positively and significantly influence entrepreneurial intentions. Thus, it is assumed that:

H10. *Opportunity recognition (OR) positively influences entrepreneurial intention (IN).*

The need for achievement reflects a trait of personality, arising from both demographic and environmental factors (Kristiansen and Indarti 2004). McClelland (1961) indicated that a higher level of need for achievement prepares an individual to enjoy risk-taking and pursue an entrepreneurial career to find higher levels of satisfaction in terms of personal achievement (McClelland 1961). As a dimension of psychological factors, the need for achievement has been identified as a significant driver of an individual's entrepreneurial intent (Kristiansen and Indarti 2004; Rokhman and Ahamed 2015).

Karabulut (2016) found that holding a higher need for achievement leads to elevated entrepreneurial intention. Based on an empirical investigation among Romanian students, Popescu et al. (2016) supported that the need for achievement and a risk-taking propensity help in fostering entrepreneurial intention. Further, Vodă and Florea (2019) argued that the locus of control, need for achievement, and entrepreneurial education positively influence an individual's intention to start a business. Hence, we suppose that:

H11. *Need for achievement (NA) positively influences entrepreneurial intention (IN).*

2.6. Entrepreneurial Intention and Behavior

Ajzen (1991) confirmed that individual intention represents a significant determinant of individual future behavior. However, very limited research in the field of entrepreneurship has tested the association between entrepreneurial intent and behavior (Alam et al. 2019; Gieure et al. 2020).

Kautonen et al. (2013) confirmed that entrepreneurial intent and perceived behavioral control constitute significant predictors of entrepreneurial behavior. By investigating the entrepreneurial process through exploring the association between intent and behavior among a population of students from 34 countries, Gieure et al. (2020) confirmed the positive influence of entrepreneurial intentions on entrepreneurial behavior, which is linked not only to social situations but also to individuals' acquisition of knowledge. Hence, we suppose that:

H12. *Entrepreneurial intention (IN) positively influences entrepreneurial behavior (BE).*

The literature overview allowed us to elaborate the conceptual research model as follows (Figure 1):

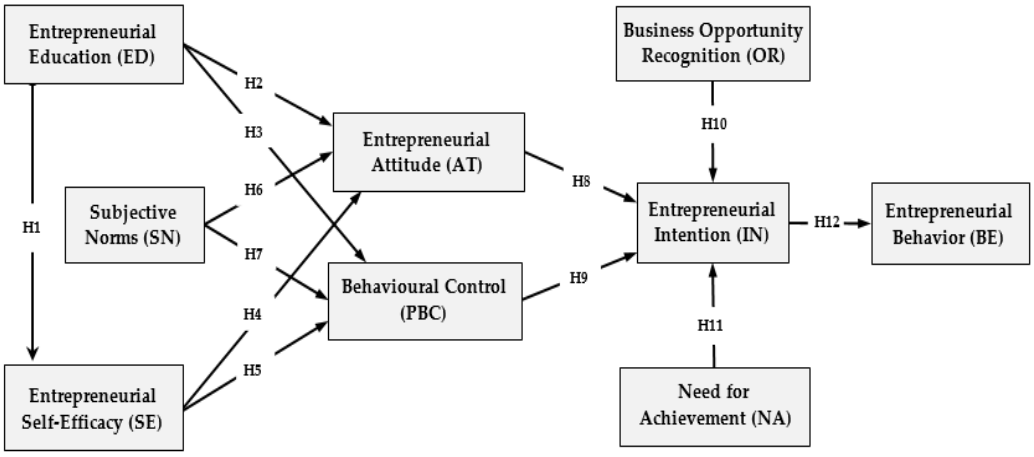

Figure 1. The proposed conceptual model.

3. Methodology

3.1. Latent Variable Measurement Scales

The measures used in this empirical study were derived from earlier entrepreneurship works (Appendix A). More specifically, we used four items selected from Kristiansen and Indarti (2004) to measure the need for achievement (NA). The business opportunity recognition (OR) was assessed using five items (Ozgen and Baron 2007). Entrepreneurial education (ED) and entrepreneurial self-efficacy (SE) were both measured through four items each derived from prior works (Liu et al. 2019). Regarding the four variables i.e., entrepreneurial attitude (AT), perceived behavioral control (BC), subjective norms (SN), and entrepreneurial intention (EI), they were measured using three, six, three, and four items, respectively, derived from Liñán and Chen's (2009) work. Lastly, the entrepreneurial behavior (EB) was measured using seven items (Gieure et al. 2020; Duong 2022). A Likert scale running from strong disagreement (1) to strong agreement (5) was used for measuring all items.

3.2. Data Collection and Sample Size

The questionnaire of the current study is designed around two sections. The first section serves to gather information regarding the participants' characteristics, whereas the second section included forty questions (items) measuring the nine latent variables of the developed conceptual model.

Following the questionnaire design, a pretesting phase was undertaken to ensure the understanding of the questions. For this purpose, face-to-face meetings were conducted with two entrepreneurial coaches and three entrepreneurship experts, as well as five women who had taken entrepreneurial training. At this stage, a first draft of the questionnaire in three languages (English, French, and Arabic) was provided to the pilot study participants. The participants certified the simplicity and consistency of the questions. Likewise, one expert recommended including questions regarding entrepreneurial accompaniment to better know the women's entrepreneurial accompaniment programs in Morocco.

The data collection was conducted online using a self-administered questionnaire performed via Google Form from 14 October to 26 November 2022. Additionally, the targeted respondents were Moroccans females. More specifically, the sample selection process consisted of a sample of Moroccan women who attended an entrepreneurship training course. Using the snowball approach, the online questionnaire link was shared with women interested in the study during the entrepreneurial training workshops, and then they were asked to disseminate it to other women with the same characteristics.

During this data collection period, we gathered 148 eligible responses from Moroccan women who had undergone entrepreneurship training. Most of the study participants were married (59.46%) and over 29 years old (70.95%) and held a university degree (95.27%), including a Master's degree (BAC + 5 = 51.35%), Bachelor's degree (BAC + 3 = 15,54%),

and BAC + 2 (8.78%). A large percentage of women participating in the current study received entrepreneurship training combined with theoretical and practical aspects (50.68%). Furthermore, over 37% of these women received entrepreneurial accompaniments as part of the integrated program of business support and financing (17.57%) and the *Mra w Gadda* "Women and capable" program (10.14%). Launched on 3 February 2020, the Integrated Program of Business Support and Financing is a government program designed to provide a new dynamic to entrepreneurship through three pillars, including entrepreneurship financing, the coordination of support actions and entrepreneurial accompaniment throughout Morocco's regions, and facilitating the financial inclusion of young project holders and SMEs. The "*Mra W Gadda*" program is a private initiative designed to support women and young women with income-generating activities by providing training and networking.

3.3. Data Analysis Method

To evaluate the research model, PLS structural equation modeling has been applied in two distinct rounds, including the evaluation of the measurement model and the structural model (inner model). More specifically, the measurement model evaluation (round 1) requires assessing the convergent validity (Cronbach's alpha, reliability, composite reliability, loadings, and average variance extracted) and the discriminant validity (cross-loadings, Fornell–Larcker criterion, HTMT ratio). Furthermore, the inner model evaluation is ensured using the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), goodness-of-fit (GoF), and hypotheses testing (β-value, T Statistics, *p*-value).

4. Study Findings and Discussions

4.1. Results of Outer Model Evaluation

This subsection reports the outcomes of assessing the outer model by examining the convergent and discriminant validity. The items with a relatively weak cross-loading value were removed from the model (ED2 = 0.668; BE6 = 0.589). After removing these items, the calculated outer-loading values were ranked as good, as these values varied from 0.73 to 0.96 (Table 1).

Table 1. Results of outer model's convergent validity.

Construct	Item	Loading	Cronbach's α	Composite Reliability	AVE
Entrepreneurial Attitude	AT1	0.82	0.86	0.92	0.78
	AT2	0.93			
	AT3	0.90			
Perceived Behavioral Control	BC1	0.74	0.91	0.93	0.69
	BC2	0.83			
	BC3	0.90			
	BC4	0.82			
	BC5	0.84			
	BC6	0.84			
Entrepreneurial Behavior	BE1	0.85	0.88	0.91	0.63
	BE2	0.79			
	BE3	0.85			
	BE4	0.84			
	BE5	0.68			
	BE7	0.74			

Table 1. *Cont.*

Construct	Item	Loading	Cronbach's α	Composite Reliability	AVE
Entrepreneurial Education	ED1	0.73	0.70	0.83	0.63
	ED3	0.82			
	ED4	0.82			
Entrepreneurial Intention	IN1	0.93	0.96	0.97	0.89
	IN2	0.96			
	IN3	0.94			
	IN4	0.95			
Need for Achievement	NA1	0.79	0.85	0.90	0.70
	NA2	0.90			
	NA3	0.89			
	NA4	0.75			
Business Opportunity Recognition	OR1	0.85	0.89	0.92	0.70
	OR2	0.70			
	OR3	0.85			
	OR4	0.89			
	OR5	0.88			
Entrepreneurial Self-efficacy	SE1	0.79	0.85	0.90	0.69
	SE2	0.83			
	SE3	0.84			
	SE4	0.86			
Subjective Norms	SN1	0.82	0.84	0.90	0.76
	SN2	0.87			
	SN3	0.92			

The average variance extracted (AVE), the internal reliability (Cronbach's α), and the composite reliability scores are all above 0.5 [0.63 → 0.89], 0.7 [0.70 → 0.96], and 0.7 [0.83 → 0.97], respectively, lending evidence supporting the outer model's convergent validity (Boubker and Douayri 2020; Hair et al. 2019).

The second step in the outer model's examination involves assessing discriminant validity. For this purpose, we employed multiple criteria, including Fornell–Larcker criterion and the heterotrait–monotrait ratio of correlations (HTMT). The obtained findings are summarized in Table 2, which testifies that the root squares of AVEs of every single latent construct exceeded its highest squared correlation to any other latent variable. Moreover, the HTMT criterion verification displayed that the highest HTMT value (HTMT = 0.80) was significantly lower than the recommended threshold of 0.85 (Henseler et al. 2015).

Table 2. Results of outer model's discriminant validity assessment.

	Fornell–Larcker Criterion									**HTMT of Correlations**								
	AT	BC	BE	ED	IN	NA	OR	SE	SN	AT	BC	BE	ED	IN	NA	OR	SE	SN
AT	0.89																	
BC	0.64	0.83								0.71								
BE	0.34	0.67	0.80							0.37	0.74							
ED	0.32	0.63	0.63	0.79						0.41	0.79	0.80						
IN	0.71	0.62	0.48	0.40	0.94					0.78	0.66	0.51	0.49					
NA	0.66	0.62	0.30	0.43	0.67	0.84				0.75	0.70	0.34	0.57	0.73				
OR	0.50	0.65	0.48	0.48	0.60	0.63	0.84			0.54	0.71	0.53	0.63	0.63	0.69			
SE	0.52	0.72	0.62	0.56	0.53	0.59	0.62	0.83		0.60	0.81	0.72	0.73	0.58	0.69	0.70		
SN	0.45	0.45	0.28	0.31	0.53	0.51	0.47	0.35	0.87	0.52	0.50	0.31	0.39	0.58	0.59	0.52	0.41	

4.2. Results and Discussions of Inner Model Evaluation

The inner model evaluation consisted of checking the relevancy of various metrics (R^2, Q^2, f^2, GoF) with expert-specified thresholds. As illustrated in Table 3, the R-square scores for the five endogenous latent constructs, i.e., entrepreneurial self-efficacy, PBC, entrepreneurial attitude, entrepreneurial intention, and entrepreneurial behavior, are respectively 32, 62, 35, 61, and 23%, reflecting an acceptable degree of these constructs' determination.

Table 3. Endogenous latent variable coefficient of determination (R^2).

Constructs	**R^2**	**R^2 Adjusted**
Entrepreneurial Self-efficacy	0.32	0.31
Perceived Behavioral Control	0.62	0.61
Entrepreneurial Attitude	0.35	0.33
Entrepreneurial Intention	0.61	0.60
Entrepreneurial Behavior	0.23	0.23

As illustrated in Table 4, the Q-square scores for the five endogenous latent constructs, i.e., entrepreneurial self-efficacy, PBC, entrepreneurial attitude, entrepreneurial intention, and entrepreneurial behavior are 22, 42, 27, 54, and 14%, respectively, reflecting an acceptable level of predictive relevance. Likewise, the goodness-of-fit of the model (GoF = 0.55) score exceeds 0.36, indicating a consistent good fit of the model.

As presented in the following table, the PLS analysis outputs revealed that the majority of the hypotheses were validated, excluding the association between entrepreneurial education and entrepreneurial attitude (H2. t = 0.128; $p = 0.898$; $f^2 = 0.00$) and the association between PBC and entrepreneurial attitude (H9. t = 1.204; $p = 0.229$; $f^2 = 0.01$), which were not significant (Table 5).

The results of the current study support the direct and positive impact of entrepreneurial education on women's entrepreneurial self-efficacy (H1. β = 0.564, $t = 8.858$; $p = 0.000$; $f^2 = 0.47$) and their perceived behavioral control (H3. β = 0.295, $t = 4.770$; $p = 0.000$; $f^2 = 0.15$).

Table 4. Predictive relevance.

Constructs	SSO	SSE	Q^2
Business Opportunity Recognition	740.00	740.00	
Entrepreneurial Attitude	444.00	326.16	0.27
Entrepreneurial Education	444.00	444.00	
Entrepreneurial Intention	592.00	274.41	0.54
Entrepreneurial Behavior	888.00	767.83	0.14
Entrepreneurial Self-efficacy	592.00	464.63	0.22
Need for Achievement	592.00	592.00	
Perceived Behavioral Control	888.00	517.47	0.42
Subjective Norms	444.00	444.00	

Table 5. Hypotheses testing outcomes.

Hypothesis				β-Value	T Statistics	*p*-Value	f^2	Supported
H1	E. Education	→	E. Self-Efficacy	0.564	8.858	0.000	0.47	Yes
H2	E. Education	→	E. Attitude	−0.009	0.128	0.898	0.00	No
H3	E. Education	→	PBC	0.295	4.770	0.000	0.15	Yes
H4	E. Self-Efficacy	→	E. Attitude	0.414	4.604	0.000	0.17	Yes
H5	E. Self-Efficacy	→	PBC	0.485	6.962	0.000	0.40	Yes
H6	Subjective Norms	→	E. Attitude	0.304	4.145	0.000	0.12	Yes
H7	Subjective Norms	→	PBC	0.188	3.299	0.001	0.08	Yes
H8	E. Attitude	→	E. Intention	0.414	4.987	0.000	0.21	Yes
H9	PBC	→	E. Intention	0.107	1.204	0.229	0.01	No
H10	Opportunity Recognition	→	E. Intention	0.188	2.562	0.011	0.05	Yes
H11	Need for Achievement	→	E. Intention	0.209	2.380	0.018	0.05	Yes
H12	E. Intention	→	E. Behavior	0.482	6.999	0.000	0.30	Yes

Further, the PLS analysis confirms the significant influences of women's entrepreneurial self-efficacy on entrepreneurial attitude (H4. B = 0.414, t = 4.604; p = 0.000; f^2 =0.17) and PBC (H5. β = 0.485, t = 6.962; p = 0.000; f^2 = 0.40).

Additionally, the effect of subjective norms on entrepreneurial attitude and PBC were shown to be significant, whereby H6 (β = 0.304, t = 4.145; p = 0.000; f^2 = 0.12) and H7 (β = 0.188, t = 3.299; p = 0.001; f^2 = 0.08) were confirmed. A positive and significant influence was found between entrepreneurial attitude and entrepreneurial intent (β = 0.414; t-value = 4.987; p = 0.000; f^2 = 0.21); thus H8 was accepted.

The findings confirm that opportunity recognition (H10. β = 0.188; t-value = 2.562; p = 0.011; f^2 = 0.05) and the need for achievement (H11. β = 0.209; t-value = 2.380; p= 0.018; f^2 = 0.05) were able to predict the women's entrepreneurial intention.

Finally, the relationship between female entrepreneurial intent and entrepreneurial behavior was shown to be significantly positive (β = 0.482; t-value = 6.999; p = 0.000; f^2 = 0.30), supporting H12 (Figure 2).

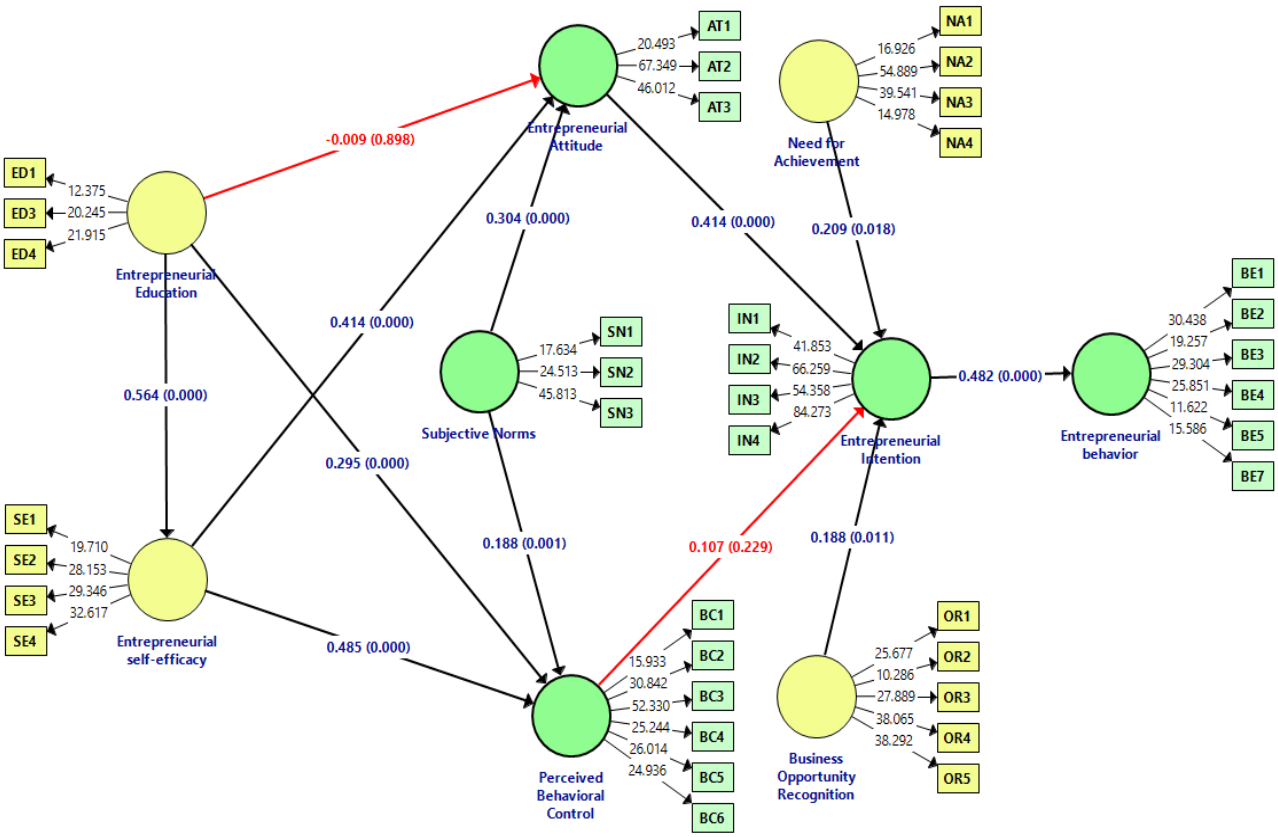

Figure 2. Hypotheses testing findings.

5. Discussions

The aim of the current study was to identify the key determinants of women's entrepreneurial intent and behavior by exploring the role of entrepreneurial education, business opportunity recognition, and the need for achievement. As such, this study intended to bridge a gap in the entrepreneurship literature concerning the relation between intention and behavior.

The findings indicate that there is a significant influence of entrepreneurial education on women's entrepreneurial self-efficacy and their perceived behavioral control. In other words, when females received entrepreneurial education, they believe that they have the entrepreneurial self-capacity to successfully implement an enterprising activity, which contributes to the development of their ability to apply innovative ideas to inspire entrepreneurial partners, choose appropriate staff, and draw up complete and clear business plans to start businesses. As well, entrepreneurship education leads to women's better PBC. These results are consistent with past empirical entrepreneurship studies, which report that the more individuals receive entrepreneurial education, the more they develop a positive perception of their entrepreneurial self-efficacy, as well as their PBC (Boubker et al. 2022; Wardana et al. 2020).

The study results shows that entrepreneurial education does not influence women's entrepreneurial attitudes; hence, the results are in line with the previous research (Liu et al. 2019). These outcomes differ from prior work that concluded that attitudes toward entrepreneurship are influenced by entrepreneurial education (Boubker et al. 2022; Wardana et al. 2020).

Furthermore, the findings confirm the significant influences of women's entrepreneurial self-efficacy on entrepreneurial attitude and PBC. A number of earlier investigations confirmed the importance of entrepreneurial self-efficacy in predicting women's attitudes toward entrepreneurship (Liu et al. 2019), and PBC (Doanh 2021). In a Vietnamese context, Doanh (2021) found similar results and confirmed a positive link between self-efficacy,

entrepreneurial attitude, and PBC. Additionally, the effect of subjective norms on entrepreneurial attitude and PBC were shown to be significant. This means that if women's social network members are supportive of starting new ventures, women will hold a favorable attitude toward entrepreneurship and a high belief in their capabilities to create new businesses. The confirmation of both hypotheses is consistent with past works (Ruiz-Rosa et al. 2020; Sun et al. 2017). For instance, Ferreira et al. (2012) affirmed the direct and positive impact of subjective norms on individuals' attitudes toward entrepreneurship. In the same way, Liñán (2008) confirmed the significant role of subjective norms on perceived behavioral control. In addition, Dao et al. (2021) further validated the positive relationship between these variables.

Consistent with prior empirical works (Baharuddin and Rahman 2021; Kumar and Das 2019; Yasir et al. 2021), a positive and significant influence was found between entrepreneurial attitude and entrepreneurial intent. This implies that women's favorable attitudes towards entrepreneurship foster their intention to start businesses. As suggested by Ferri et al. (2018), entrepreneurial attitude represents a good predictor of women's entrepreneurial intention.

As opposed to prior works (Barba-Sánchez et al. 2022; Usman and Yennita 2019), the results showed no significant influence of PBC on women's entrepreneurial intention.

Further, the findings confirm that opportunity recognition and the need for achievement were able to predict women's entrepreneurial intention. Accordingly, a high level of women's need for achievement and opportunity recognition influence their entrepreneurial intent. These outcomes are in keeping with earlier researchers, proving that business opportunity recognition (Hassan et al. 2020; Lim et al. 2021; Tian et al. 2022) and the need for achievement (Ferreira et al. 2012; Karabulut 2016; Popescu et al. 2016; Vodă and Florea 2019) provide a powerful predictor of individual intent toward entrepreneurship. For instance, the empirical study of Loan et al. (2021) emphasized the role of opportunity recognition in enhancing entrepreneurial intent. In addition, Vodă and Florea (2019) advocated that the need for achievement influences individual entrepreneurial intention.

Finally, the relationship between women's entrepreneurial intention and behavior was shown to be significantly positive. The positive and significant influence of individuals' intention on their behavior is in line with Ajzen's TPB and other previous entrepreneurship studies conducted by employing this model (Gieure et al. 2020; Kautonen et al. 2013; Sharahiley 2020). In the Kingdom of Saudi Arabia, Sharahiley (2020) empirically verified that entrepreneurial intent significantly influences an individual's behavior in starting a new venture. In the same way, Gieure et al. (2020) supported a significant and positive correlation between students' entrepreneurial intentions and their entrepreneurial behavior.

6. Conclusions and Implications

By extending Ajzen's theory of planned behavior through adding three variables, i.e., entrepreneurial education, business opportunity recognition, and the need for achievement, the objective of the current study was to identify the factors that help to boost the entrepreneurial intention and behavior of Moroccan women who have received entrepreneurship training.

The study results provide evidence of the positive influence of entrepreneurial education on entrepreneurial self-efficacy and PBC. These findings also demonstrate a direct and significant effect of entrepreneurial self-efficacy on women's attitude toward entrepreneurship and PBC. As well, both of these variables were identified as dependent on subjective norms. Furthermore, entrepreneurial attitude, business opportunity recognition, and the need for achievement were identified as predictors of entrepreneurial intent, leading to enhanced entrepreneurial behavior.

The findings of the present study provide a number of valuable implications regarding theory, practitioners, and entrepreneurial policy-makers.

From a theory standpoint, the current research provides a significant contribution to academic reflection, enlarging Ajzen's TBP model by including opportunity recognition

and the need for achievement. Likewise, this study provides empirical confirmation of how entrepreneurial education increases women's entrepreneurial self-efficacy and perceived behavioral control.

Additionally, the current study approached a specific research question that has previously received relatively limited consideration (Gieure et al. 2020), which is the investigation of the connection between intent and individual behavior regarding entrepreneurship. Accordingly, the theoretical contribution of this research is to have investigated how women's entrepreneurial intentions affect their entrepreneurial behavior, which filled a gap in the previous scholarly literature (Fayolle and Liñán 2014).

By adding entrepreneurial education, business opportunity recognition, and the need for achievement to Ajzen's model, this study provided an in-depth understanding of factors that help to strengthen women's entrepreneurial intentions and behaviors. Accordingly, the findings provide a scientific framework for guiding policy-makers on how to remedy the low rates of entrepreneurial activity observed among Moroccan women.

From a practical perspective, the proposed framework offers a clear view on factors that could lead to strengthening the entrepreneurial behavior of Moroccan women. As such, the proposed model will guide policy-makers and stakeholders involved in female entrepreneurship in Morocco in designing training and accompaniment programs to promote female entrepreneurship. Moreover, the outcomes of this study invite Moroccan policy-makers to redesign programs to support women's entrepreneurship in the country and explore ways to provide entrepreneurship training to women throughout the country. These training programs should be designed to strengthen women's entrepreneurial abilities, which, in turn, may lead to a higher chance that women will take up entrepreneurial ventures.

As the findings emphasized the need for achievement and business opportunity recognition to be a significant factor in enhancing women's entrepreneurial intention, the associations active in women's entrepreneurship are urged to support Moroccan women to recognize business opportunities.

Despite these theoretical and practical implications, the current empirical study has certain limitations that open the way to future works. First, the size of the sample was smaller than desired, preventing the generalization of the findings. Consequently, expanding the sample size will serve as a guideline for future work.

Another limitation of this study concerns the study population, which was focused on Moroccan women who received entrepreneurial training. Therefore, future studies are encouraged to test the model among a broader population of Moroccan women. Moreover, future studies may focus on testing the proposed model in other sociocultural contexts similar to Morocco, such as Tunisia, where the entrepreneurial activity rate among women remains relatively low.

Third, the adoption of a temporary approach to reflect the gap between intention and behavior may be considered as a limitation. Therefore, a promising area for future investigation involves opting for longitudinal data to properly reflect the intention–behavior gap.

Additionally, the study contributed to testing a model without any moderators. Future studies might include moderators, per the culture, on the association between entrepreneurial intent and behavior.

Finally, a further direction of future studies involves investigating the role of instrumental readiness, i.e., access to capital, social networks, and information, in explaining Moroccan women's entrepreneurial intention and behavior.

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Appendix A

Table A1. Variables and items used in this study.

Variable	Code	Items
Need for Achievement (Kristiansen and Indarti 2004)	NA1	I will do very well in fairly difficult tasks relating to my study and my work.
	NA2	I will try hard to improve on past work performance.
	NA3	I will seek added responsibilities in jobs assigned to me.
	NA4	I will try to perform better than my friends
Business Opportunity Recognition (Ozgen and Baron 2007)	OR1	I see many opportunities to start and grow a business
	OR2	Finding potential venture opportunities is easy for me
	OR3	In general, there are many opportunities for new product innovation
	OR4	I have a special sense of new venture ideas
	OR5	During my routine day-to-day activities, I see potential new venture ideas.
Entrepreneurial Education (Liu et al. 2019)	ED1	I invest much time and energy in studying the latest developments in business management.
	ED2 *	I have received some entrepreneurial education or training.
	ED3	I have a lot of knowledge about management (entrepreneurship).
	ED4	I have many entrepreneurial experiences.
Entrepreneurial Self-efficacy (Liu et al. 2019)	SE1	I am able to choose suitable employees for my own business.
	SE2	I am able to apply innovative ideas to inspire entrepreneurial partners.
	SE3	I can write a clear and complete business plan.
	SE4	I can make a clear plan for the future development direction of entrepreneurship.
Entrepreneurial Attitude (Liñán and Chen 2009)	AT1	Being an entrepreneur implies more advantages than disadvantages to me
	AT2	A career as an entrepreneur is attractive for me
	AT3	If I had the opportunity and resources, I would like to start a new business.
Perceived Behavioral Control (Liñán and Chen 2009)	BC1	To start a firm and keep it working would be easy for me.
	BC2	I am prepared to start a viable firm
	BC3	I can control the creation process of a new firm
	BC4	I know the necessary practical details to start a firm
	BC5	I know how to develop an entrepreneurial project
	BC6	If I tried to start a firm, I would have a high probability of succeeding.
Subjective Norms (Liñán and Chen 2009)	SN1	My friends will support my decision to start a business
	SN2	My family will support my decision to start a business
	SN3	The people around me will support my decision to start a business.
Entrepreneurial Intention (Liñán and Chen 2009)	EI1	I am ready to do anything to become an entrepreneur
	EI2	I will make my best effort to start and run my own business.
	EI3	I am determined to create a business venture in the future.
	EI4	My career goal is to become an entrepreneur
Entrepreneurial Behavior (Gieure et al. 2020)	EB1	I have experience in starting new projects or businesses
	EB2	I am capable of developing a business plan
	EB3	I know how to start a new business
	EB4	I know how to do market research
	EB5	I have invested in an informal manner in some business
	EB6 *	I can save money to invest in a business
	EB7	I belong to a social network that can promote my business.

* Removed from the analysis due to their low cross-loading value.

Table A2. Participant characteristics.

Description	Category	N	Percentage
Age	Above 29	105	70.95%
	26–29	28	18.92%
	22–25	10	6.76%
	18–21	5	3.38%
Marital Status	Married	88	59.46%
	Single	51	34.46%
	Divorced	9	6.08%
Education	University	141	95.27%
	High school	7	4.73%
Academic Level	BAC + 5	76	51.35%
	BAC + 3	23	15.54%
	BAC + 2	13	8.78%
	BAC + 4	13	8.78%
	PhD	13	8.78%
	Baccalaureate level	6	4.05%
	BAC + 1	2	1.35%
	BAC	1	0.68%
	BAC + 6	1	0.68%
Entrepreneurship Training	Yes	148	100.00%
Training Type	Both theoretical and practical	75	50.68%
	Theoretical training	54	36.49%
	Learning by doing	19	12.84%
Entrepreneurship Accompaniment	No	92	62.16%
	Yes	56	37.84%
Program	None	92	62.16%
	Integrated program of business support and financing	26	17.57%
	Mra w Gadda Program	15	10.14%
	National student-entrepreneur status	7	4.73%
	QIMAM Program	4	2.70%
	Dar Al Moukawil	1	0.68%
	Forsa Program	1	0.68%
	Injaz Al-Maghrib	1	0.68%
	Moukawalati Program	1	0.68%
Mother's Profession	No occupation	88	59.46%
	Retired	27	18.24%
	Government employee	22	14.86%
	Private company employee	9	6.08%
	Entrepreneur	2	1.35%
Father's Profession	Retired	60	40.54%
	Entrepreneur	32	21.62%
	Government employee	32	21.62%
	Private company employee	15	10.14%
	No occupation	9	6.08%

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