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Published in: Entrepreneurship Theory and Practice

DOI: 10.1177/10422587221096905

Publication date: 2023

Document version: Accepted manuscript

Citation for pulished version (APA):

Zhang, H., Zhou, X., Nielsen, M. S., & Klyver, K. (2023). The Role of Stereotype Threat, Anxiety, and Emotional Intelligence in Women's Opportunity Evaluation. *Entrepreneurship Theory and Practice*, *47*(5), 1699-1730. https://doi.org/10.1177/10422587221096905

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Download date: 02 Mar 2024

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Accepted for publication in Entrepreneurship Theory and Practice

https://doi.org/10.1177/10422587221096905

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Abstract

Masculine stereotypes of entrepreneurship represent a threat to women. We aim to understand how such stereotype threat affects women's opportunity evaluation through anxiety. We test our idea using a two-randomized-experiment strategy and achieve external validity using a survey of female entrepreneurs. We find that situational anxiety, as an emotional mechanism, explains why stereotype threat negatively influences opportunity evaluation among women. We further unveil emotional intelligence as a boundary condition enabling women to cope with stereotype threat during opportunity evaluation. Our studies provide new insights into an emotive view of stereotype threat in the context of women's entrepreneurship.

Introduction

Mass media and policymakers with historically embedded masculine assumptions reinforce stereotypes and, thus, women's position in society as secondary, framing entrepreneurship "as an individual undertaking, and the exclusion of family and reproductive work as part of the entrepreneur's life commitment" (Ahl & Nelson, 2015, p. 274). Such negative gender-biased stereotypes create an unfriendly social environment for women entrepreneurship. The potential societal disadvantages of negative gender-biased stereotypes are evident and relate to missing out not only on entrepreneurial activity from a numbers perspective (i.e., more female entrepreneurs), but also on the diverse natures of women's entrepreneurship. Women start different types of businesses (e.g., Tonoyan et al., 2020), manage, and lead

differently than men (Henry et al., 2015), thus bringing diversity to startup activity.

Due to an incongruence between the stereotyped characteristics of women and of successful entrepreneurs (Brooks et al. 2014), prior research shows how women often face "gender penalty" by external resource providers (M. Lee & Huang, 2018) and are less likely to receive funding for their ventures (Prentice & Carranza 2002). Beyond that, extant research identifies a negative impact of gender-biased stereotypes directly within women themselves (Adom & Anambane, 2019; Gupta et al., 2013, 2014, 2019; Gupta & Turban, 2012). Early experimental work demonstrates that women exposed to negative stereotype conditions—for instance, linking entrepreneurship to masculine attributes—are more likely to evaluate opportunities pessimistically. Gupta et al. (2014) and Gupta and Bhawe (2007) questioned whether negative stereotypes cause *stereotype threat effects*, a kind of "mental predicament" in which women worry about doing something that confirms female entrepreneurs' negative stereotypes (Steele & Aronson, 1998). Such worries play a key role in guiding women's cognitive representations of opportunities (Adom & Anambane, 2019; Gupta et al., 2014).

Opportunity evaluation is an intensive cognitive effort (Mary et al., 2016). In it, stereotype threat stemming from negative societal and cultural gender norms guides the subjective attitude about opportunities toward unfavorable directions (Adom & Anambane, 2019; Gupta et al., 2013, 2014; Gupta & Turban, 2012). However, research in this area provides only tentative speculations on how and when stereotype threat shapes women's negative opportunity attitudes (Gupta et al., 2014): No research so far has provided empirical evidence of the underlying mechanisms ("the how") or boundary conditions ("the when"). Further, there are mounting calls in research on stereotype threat (e.g., Nguyen & Ryan, 2008) to explain the stereotype-threat mechanisms and clarify its boundaries (e.g., Swab et al., 2021). With

opportunity evaluation characterized as a highly emotional process (Foo, 2011; Welpe et al., 2012), we suggest *anxiety* as an affective mechanism linking stereotype threat and opportunity evaluation ("the how") and *emotional intelligence* as a boundary condition for the affective mechanism ("the when"). We especially anticipate that stereotype threat will increase *situational anxiety* (K. Lee et al., 2011), an emotional state of nervousness, uneasiness, and tension resulting from threatening circumstances (Spielberger et al., 1976). In turn, situational anxiety acts as a filter that retains negative information (Foo, 2011); it tips the opportunity evaluation in a pessimistic direction. We then expect *emotional intelligence*, the capability to understand and manage emotions accurately (Salovey et al., 2004), to be crucial to how the emotional experience of anxiety has cognitive consequences for opportunity evaluation. We propose that higher emotional intelligence levels inhibit the generation of negative emotions and influence the subsequent cognitive consequences related to opportunity evaluation. Thus, we establish emotional intelligence as a boundary condition of anxiety's mediating effect in the stereotype-threat—opportunity-evaluation link.

We test our model across three studies (two experiments and one survey). In Studies 1 and 2, we use a two-randomized-experiment strategy (Stone-Romero & Rosopa, 2011) to test each path of the mediation hypothesis. In Study 3, we use data from a survey of female entrepreneurs to test the full mediation path and strengthen external validity. Robust findings across the three studies show that stereotype threat influences women to evaluate opportunities more pessimistically, with anxiety functioning as a mechanism conditioned on the women's emotional intelligence level. We integrate stereotype threat theory with an emotive view of opportunity evaluation (Foo, 2011; Mary et al., 2016; Welpe et al., 2012) and unveil the affective mechanism through which gendered norms and expectations around entrepreneurial roles

emotionally shape the way women evaluate opportunities. Further, we strengthen the efficacy and usefulness of stereotype threat theory research (Swab et al., 2021) and extend its external validity.

Theoretical Background

Stereotype Threat Theory

Stereotype threat theory is a key and widely studied theory within social psychology (Steele, 1997; Steele et al., 2002) originating from Steele and Aronson's (1995) seminal work. Steele and Aronson (1995) observed that Black students underperformed compared to White students on a standardized test (controlling for SAT score differences) when negative stereotypes of African Americans' intellectual inferiority were "in the air." However, when negative stereotypes were removed, the performance gap closed. To explain this phenomenon, Steele and Aronson (1995) proposed stereotype threat as a "mental predicament" of a negatively stereotyped group dealing with the risk of being judged or treated stereotypically or doing something that confirms the stereotype. Stereotype threat has been used to explain women's underperformance in male-dominated fields, such as mathematical examination (Spencer et al., 1999), leadership (Hoyt & Murphy, 2016), and automobile purchasing (K. Lee et al., 2011).

Steele (1997) highlighted four conditions necessary for stereotype threat to be effective and activated: (1) People must be aware of the existence of consistent stereotypes of their group, (2) the activity in which the individual is engaged is negatively stereotyped, (3) the activity is relatively difficult, and (4) individuals identify somewhat with the stereotyped group and are concerned about their performance. Gendered entrepreneurship stereotypes are deeply entrenched in individuals' beliefs and intensively promoted by public conversations (Marlow, 2020). Therefore, it is reasonable to suggest that women who engage in high-risk, complicated

entrepreneurial activities experience stereotype threat automatically and without a reminder (Gupta et al., 2014). Previous studies shows that most people are well aware of the negative stereotypes around them (Davies et al., 2002; Devine, 1989), and those who contend with negative stereotypes about their abilities are at risk of experiencing stereotype threat (Spencer et al., 1999). In entrepreneurship research, the dominating discourse is masculine, describing entrepreneurial characteristics as "decisiveness, boldness, ambition and independence" (Ahl, 2006, p. 604). Mass media also tends to portray entrepreneurs as men with predominantly male characteristics, whereas they portray women based on traditional gender stereotypes (Achtenhagen & Welter, 2011; Bruni et al., 2004).

Emotions and Opportunity Evaluation

Opportunity evaluation refers to individuals' assessment of whether a business idea is a "desirable" and "feasible" opportunity for them personally (Foo, 2011; Treffers et al., 2019; Welpe et al., 2012). This assessment is an "individuation" process completed in highly uncertain environments (Wood & McKelvie, 2015), where emotions greatly influence the assessments (Cardon et al., 2012; Foo, 2011; Welpe et al., 2012). Emotions shape opportunity evaluation by influencing how individuals process information (Baron, 2000, 2008; Grichnik et al., 2010). Specifically, they facilitate the recall of specific information classes (Forgas & George, 2001; Isen & Shalker, 1982) involving personal payoffs in pursuit of specific opportunities. Thus, emotions influence individuals' preferences and assessments (Wood & McKelvie, 2015).

Anxiety, an emotional experience of nervousness, uneasiness, and tension, derives from a threatening uncertainty (Spielberger et al., 1976). Anxious individuals exhibit specific information-processing biases, attend to threat-related stimuli, and recall threat-related information (e.g., Eysenck & Calvo, 1992). We suggest that they are more likely to assess

opportunities as high risk and potential financial losses. In this paper, we propose that women exposed to stereotype threat are more likely to evaluate opportunities as less desirable and feasible due to anxiety.

Hypothesis Development

Stereotype threat often creates extra pressure to succeed. This pressure leads individuals to underperform because it takes up the mental space needed to complete the tasks (i.e., working memory depletion; Spencer et al., 2016). Schmader et al. (2008) pinpointed three mechanisms for this to happen: (1) physiological stress response, (2) increased deliberate monitoring of one's performance, and (3) attempts to self-regulate by suppressing negative thoughts and emotions. The attempt to self-regulate is a reaction to the first two mechanisms, thus interrelating the three. Separately and combined, these three interrelated mechanisms cause working memory depletion (Spencer et al., 2016). As discussed in the following section, we regard these as the underlying mechanisms driving anxiety. They are instrumental in explaining how anxiety results from stereotype threat and subsequently influences opportunity evaluation.

Mediating Role of Anxiety

We focus first on the relationship between stereotype threat and situational anxiety as a stress response. *Situational anxiety* is an emotional state of nervousness, uneasiness, and tension related to threatening circumstances (Spielberger et al., 1976), such as starting a business. Evidence suggested that situational anxiety is critical in stereotype-threat effects among negatively stereotyped groups (K. Lee et al., 2011; Steele, 1997). Schmader et al. (2008) identified negative thoughts and emotions, including anxiety, as possible outcomes of a physiological stress response. Notably, in an entrepreneurship context, such situational anxiety is often competence-related. It manifests in women worrying about doing something to confirm a

negative stereotype of female entrepreneurs as insufficiently competent or ineffective.

We propose that stereotype threat positively relates to women's competence-related anxiety during opportunity evaluation. Studies demonstrate that women affected by stereotype threat tend to anchor their competence beliefs to stereotypical information and doubt their capability in male-stereotypical (e.g., entrepreneurship) domains (Bridges, 1988; Tellhed & Adolfsson, 2018). Such competence doubts increase women's psychological pressure and awaken their competence-related anxiety. Risk and uncertainty characterize the entrepreneurship domain. Thus, a stereotype-based mismatch between women's characteristics and those considered necessary for successful entrepreneurs can psychologically burden women and initiate their competence-related anxiety. Thus, we propose:

Hypothesis 1: *Stereotype threat positively predicts women's anxiety.*

We further propose that situational anxiety negatively relates to opportunity evaluation because it causes increased deliberate monitoring of one's own performance (Schmader et al., 2008; Spencer et al., 2016). Women assess a business idea's subjective feasibility according to their personal competencies (Gruber et al., 2015). Anxious women exposed to stereotype threat may automatically anchor their personal ability to the average group level or in-group threatening information (i.e., "women are poor at entrepreneurship"), which reduces their expectations for success and increases the possibility of pessimistic evaluation.

Situational anxiety also contributes negatively to opportunity evaluation through its unique role in generating avoidance reflection (Raghunathan & Pham, 1999). Unlike other negative emotions, such as anger and sadness, anxiety is interpreted as a signal of threat and uncontrollability and may actuate a preference for low-risk options (Raghunathan et al., 2006). Altogether, we expect individuals in an emotional state of anxiety to be more prone to making

pessimistic judgments (Schwarz, 2000). It is reasonable to suggest that women who experience anxiety tend to evaluate opportunities as less desirable and feasible, thereby aligning the evaluation with their emotions. Thus, we propose:

Hypothesis 2: Anxiety negatively predicts women's opportunity evaluation.

Hypothesis 1 predicts a positive relationship between stereotype threat and anxiety, and Hypothesis 2 predicts a negative relationship between anxiety and opportunity evaluation. Together, these two hypotheses predict that stereotype threat indirectly predicts opportunity evaluation by increasing women's anxiety. The physiological stress response expressed emotionally as anxiety from Hypothesis 1 and the increased monitoring of one's performance from Hypothesis 2 lead to continuous attempts to self-regulate and suppress related negative thoughts and emotions (Schmader et al., 2008). Through these three combined underlying mechanisms, stereotype threat impairs working memory, making it more difficult to control attention and process information (Schmader & Beilock, 2012; Schmader et al., 2009). Accordingly, we suggest that due to working memory depletion when facing the task of opportunity evaluation, women under stereotype threat activate a physiological stress response and increase attention to their performance, which causes anxiety. Their efforts to suppress these negative anxiety emotions require a larger part of their working memory, leaving less available to control attention and process information. They then evaluate opportunities as less desirable and feasible. Thus, we propose:

Hypothesis 3: Stereotype threat negatively predicts women's opportunity evaluation.

Hypothesis 4: Anxiety mediates the impact of stereotype threat on opportunity evaluation for women.

Moderating Role of Emotional Intelligence

Research on stereotype threat has focused on how individuals can cope with it to not impair performance (Lui et al., 2021; Spencer et al., 2016). Different coping interventions, such as self-affirmation (Sherman, 2013), mindfulness training (Weger et al., 2012), and general education about stereotypes (Johns et al., 2005), have been suggested as effective. Stereotypes can be difficult to change; therefore, attention must be paid to how coping interventions can alleviate their negative influences (Liu et al., 2021; Spencer et al., 2016).

We previously argued that anxiety mediates the effect of stereotype threat on opportunity evaluation. However, expecting this mediating path to depend on certain personal characteristics (Hess et al., 2009), we introduce emotional intelligence as a key agentic coping intervention. *Emotional intelligence* refers to a set of emotional capabilities involving recognizing, expressing, understanding, and managing one's own and others' emotions (Salovey et al., 2004), and it exerts an important influence on entrepreneurs' emotional processes (De Cock et al., 2020). We suggest a moderating effect of emotional intelligence on relationships between (1) stereotype threat and anxiety and (2) anxiety and opportunity evaluation.

First, we propose that emotional intelligence moderates the relationship between stereotype threat and anxiety in an alleviating way because it helps individuals understand emotions related to negative stereotypes (Mayer et al., 2008; Yip & Côté, 2013). Specifically, individuals with high emotional intelligence can reassess situations affected by emotions by changing their internal experience of the emotion (Mayer et al., 2008). Emotional intelligence mitigates negative emotional shocks by adjusting people's views on negative emotional events (De Cock et al., 2020).

Accordingly, women with high emotional intelligence are more likely to realize that

negative stereotype-based expectations are a stigmatized prejudice. By clarifying that these expectations do not represent their abilities, they overcome or diminish the adverse effects of stereotype threat and its associated negative emotions. Thus, emotional intelligence helps alleviate anxiety stemming from the stereotype threat. We propose:

Hypothesis 5a: *Emotional intelligence attenuates the positive relationship between stereotype threat and anxiety.*

Second, we expect emotional intelligence to moderate the relationship between anxiety and opportunity evaluation because individuals with emotional intelligence are more capable of managing emotions. Previous research showed that individuals with high emotional intelligence expand their skills and cognitive flexibility (Fang He et al., 2018; Huy & Zott, 2019). This capability and broadmindedness are crucial for embracing and reducing the effects of, rather than folding under, negative emotions.

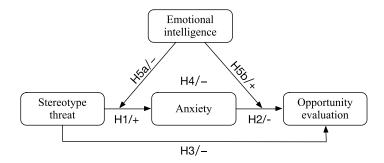
Rather than narrowing their attention to threats and risks, anxious women with high levels of emotional intelligence keep an open mind while evaluating opportunities. In such situations, high emotional intelligence helps alleviate the effects of anxiety and reduces their impact on opportunity evaluation. Emotionally intelligent anxious women have stronger capabilities to reappraise their apprehension and understand that the excessive worries stereotype threat generates are irrelevant to the business idea (Yip & Côté, 2013). Such is not the case for anxious women with low emotional intelligence. We predict that anxiety is less likely to disrupt opportunity evaluations of emotionally intelligent women (Maner & Schmidt, 2006). Therefore, these women will evaluate opportunities more favorably than those with lower levels of emotional intelligence. We propose:

Hypothesis 5b: *Emotional intelligence attenuates the negative relationship between*

anxiety and opportunity evaluation.

We graphically illustrate our research model in Figure 1.

Figure 1. Research Model



Methods and Results

We conducted three studies to test our hypotheses. Study 1 and Study 2, both experiments, tested the effects of stereotype threat on opportunity evaluation through anxiety on independent samples of postgraduate students. They also tested emotional intelligence as a boundary condition. Following Stone-Romero and Rosopa (2011), we used a two-randomized-experiment strategy to test the mediation hypothesis: One experiment tested the path from stereotype threat to anxiety; the other tested the path from anxiety to opportunity evaluation. Study 3 was a field survey with a sample of female entrepreneurs. It tested the full mediation path and provided external validity for our results.

These three studies allowed us to test the predicted moderated mediated model: stereotype threat's influence on opportunity evaluation through anxiety, depending on emotional intelligence, while controlling for confounding individual-level differences. As previous studies suggested (Hoyt & Murphy, 2016; K. Lee et al., 2011), stereotype threats only cause negative consequences among negatively stereotyped groups. If stereotype threat effects differ between men and women, they may be subtle antecedents of the gender gap. Therefore, including men

and women in our two experiments validates the stereotype threat explanation of women's opportunity evaluation. One of Steel's (1997) conditions to activate stereotype threat is that the activity in which the individual is engaged must be negatively stereotyped. This is not the case for men's entrepreneurship. Thus, if stereotype threat theory substantially explains women's opportunity evaluation, it simultaneously implies that such a threat cannot explain men's opportunity explanation.

All studies were carried out in a Chinese context. China is especially suitable for our research because gender inequalities and stereotypes were clearly prevalent and manifest there. For instance, the Global Gender Gap Report (World Economic Forum, 2020) showed that Chinese women ranked 106 of 153 countries in economic participation and opportunity, education, health and survival, and political empowerment. This context was further suitable because North America and Western Europe have predominated in stereotype threat studies. Table 1 shows an overview of the three studies; Appendix A.1 provides additional details.

Table 1 Overview of the Three Studies

	Study 1	Study 2	Study 3
Type	Experiment	Experiment	Survey
Sample	Postgraduate	Postgraduate	Female entrepreneurs
	students ($n = 283$)	students ($n = 126$)	(n = 169)
Dependent variable	Anxiety	OE	OE
Independent variable	ST	Anxiety	ST
Mediator	/	/	Anxiety
Moderator	EI	EI	EI
Relationship	ST-Anxiety	Anxiety-OE	Whole model
Hypothesis	H1, H5a	H2, H5b	H1, H2, H3, H4, H5a,
			H5b
Results	H1 supported	H2 supported	H1, H2, H3, H4, H5a
	H5a supported	H5b rejected	supported; H5b
			rejected

Note: ST = stereotype threat; OE = opportunity evaluation; EI = emotional intelligence.

Study 1

Study 1 focused on the influence of stereotype threat on anxiety. We manipulated

stereotype threat by exposing participants to different fictitious news articles previously proven to activate and remind participants of stereotypes (Pronin et al., 2004). We used a 2 (gender: men vs. women) x 3 (article: control vs. masculine stereotype vs. feminine stereotype) betweensubjects design (Erlebacher, 1977; Shewach et al., 2019).

Participants and Procedure

We sampled 283 postgraduate students (48.6% women) majoring in business management from a public university in Nanjing. The mean age was 24.53 years (SD = 1.71). Most (86%) participants reported having work experience, and 50 (17.7%) had parents with entrepreneurial experience.

We informed participants that an incubator had developed the exercise and questionnaire to evaluate entrepreneurial emotions. Participants were randomly assigned to one of three conditions: a masculine-stereotype threat group, a feminine-stereotype threat group, and a nostereotype group. We induced stereotype threat by asking participants to read different one-page fictitious news articles that Gupta et al. (2008) had developed and validated. We also pretested and validated the articles on a separate sample (n = 66; Appendix A.2).

Participants read one of the three versions of the news article (Appendix A.3.1 for Chinese; Appendix A.3.2 for English). We then asked them to imagine they needed to start a business (Treffers et al., 2019) and rate four items according to their feelings (nervous, anxious, worried, or apprehensive; Brooks & Schweitzer, 2011). These items were averaged to measure anxiety (α = .893). Next, we asked participants to answer seven questions related to stereotype threat (α = .894; Bergeron et al., 2006). Sample items include, "I doubt others would think I have less ability because of my gender" and "My gender does not affect people's perception of my ability" (reverse). Respondents then answered 16 questions about their emotional intelligence (α

= .900; Law et al., 2004). Anxiety, stereotype threat, and emotional intelligence were measured on a 5-point Likert scale. Finally, participants provided demographic details.

Manipulation Check

The manipulation of stereotype threat was successful (Table 2). For instance, women in the masculine-stereotype condition ($M_{\rm masculine} = 4.19$; SD = .73) reported higher stereotype threat levels than did women in the neutral condition ($M_{\rm condition} = 3.64$; SD = .57; t (92) = 4.05; p = .001; d = -.838). Women in the feminine-stereotype condition ($M_{\rm feminine} = 3.25$; SD = .58) reported lower levels of stereotype threat than did women in the neutral condition ($M_{\rm condition} = 3.64$; SD = .57; t (89) = -3.24; p = .002; d = .678).

Table 2. Manipulation Check and Hypothesis Test: Stereotype Threat, Anxiety, Emotional Intelligence by Stereotype Condition

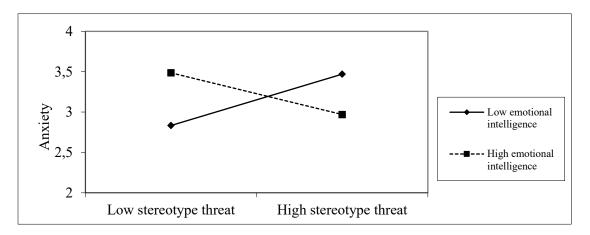
Variables	No stereotype (control) condition	Masculine stereotype threat condition	Feminine stereotype threat condition	Masculine vs. control	Feminine vs. control
		M(SD)		t	(p)
Men					
Stereotype threat	2.68 (0.55)	2.15 (0.69)	3.06 (0.40)	4.22 (0.000)	-3.86 (0.000)
Anxiety	3.44 (0.56)	2.12 (0.52)	2.70 (0.62)	5.08 (0.000)	-6.06 (0.000)
Emotional intelligence	3.53 (0.64)	3.55 (0.55)	3.48 (0.59)	/	/
N	48	48	48	/	/
Women					
Stereotype threat	3.64 (0.57)	4.19 (0.73)	3.25 (0.58)	4.05 (0.001)	-3.24 (0.002)
Anxiety	3.05 (0.38)	3.76 (0.79)	2.64 (0.60)	5.48 (0.000)	-3.85 (0.002)
Emotional intelligence	3.02 (0.45)	2.64 (0.48)	3.34 (0.43)	1	1
N	46	48	45	/	/

Results

Table 2 shows that women under the masculine-stereotype condition experienced higher anxiety compared to those under the control condition ($M_{\text{masculine}} = 3.76$; SD = .79; $M_{\text{control}} = 3.05$; SD = .38; t(92) = 5.48; p = .000; d = -1.138), supporting Hypothesis 1. An ordinary least

squares (OLS) regression (Appendix B.1) showed that the interaction of stereotype threat and emotional intelligence ($\beta = -.29$; p = .035) on anxiety was significant, supporting Hypothesis 5a. Figure 2 plots the interaction: Whereas higher stereotype threat increased anxiety among women participants with low emotional intelligence, it decreased for those with high emotional intelligence.

Figure 2. Moderating Effects of Emotional Intelligence Among Women, Study 1



As a supplement, we found that men under the masculine-stereotype condition experienced lower anxiety than did those under the control condition ($M_{\rm masculine}=2.12; SD=.52; M_{\rm feminine}=3.44; SD=.56; M_{\rm control}=2.70; SD=.62; t(92)=5.07; p=.000; d=1.041).$ Our 2 (participant gender) x 3 (stereotype condition) ANOVA test (Appendix B.2) showed a significant main effect of gender ($F(11.09)=31.68; p=.000; \eta^2=.062$) and a significant interaction effect of gender and stereotype condition ($F(69.97)=99.93; p=.000; \eta^2=.390$) on anxiety. These results suggested that stereotype threat can predict differences in anxiety between men and women.

Study 2

Study 2 focused on the influence of anxiety on opportunity evaluation. We manipulated anxiety by asking participants to listen to different types of music previously proven effective in

arousing different emotions (Brooks & Schweitzer, 2011; Gino et al., 2012).

Participants and Procedure

Participants were 126 postgraduate students (60 men, 66 women) at a university in Nanjing who participated in the study for course credit. Their mean age was 24.5 years (SD = 1.7); 70.6% had work experience, and 16.8% had parents with entrepreneurial experience.

We informed participants that they would complete a survey about the relationship between music, emotions, and business and randomly assigned them to the anxiety or neutral condition. Following Brooks and Schweitzer (2011), we induced anxiety by asking participants to listen to a music clip through headphones while simultaneously reading a short case followed by a survey. Anxiety condition participants listened to the theme from the movie "Psycho;" neutral condition participants listened to Handel's "Water Music: Air." In both conditions, we played a 3-min segment on a continuous loop. Neither clip had vocal parts.

First, while listening to the music, participants read a short case about a potential entrepreneurship opportunity adapted from Gupta et al. (2014) and previously used in several entrepreneurial studies (e.g., Gupta & Turban, 2012; Zacharakis & Shepherd, 2001). That business case demonstrated the entrepreneurial opportunities' complexity without mentioning gender or industry (e.g., construction or daycare) to avoid gender-bias effects (Appendix A.4.1 for Chinese; Appendix A.4.2 for English).

Second, participants answered questions in two parts. First, they evaluated the business opportunity presented in the short case using a 3-item, 5-point Likert scale (α = .792; Goktan & Gunay, 2011; Gupta et al., 2014): 1 (would like to pursue the idea described in the scenario further), 2 (can take the idea and turn it into a real business), and 3 (can successfully start a new venture based on the idea). In the second part, participants rated their anxiety emotions (α

= .820; Brooks & Schweitzer, 2011), replied to emotional intelligence questions (α = .909; Law et al., 2004), and provided demographic information as in Study 1.

Manipulation Check

The manipulation of anxiety was successful (Table 3). Participants in the anxiety condition reported more anxiety (M = 3.39; SD = .50) than did participants in the neutral condition (M = 2.89; SD = .55; t(123) = 5.29; p = .000; d = -.950).

Results

The difference in how women evaluated the opportunity significantly depended on the experimental condition (i.e., anxiety or neutral) to which they were exposed (Table 3). Supporting Hypothesis 2, Table 3 shows that female participants exposed to the anxiety condition were more likely to evaluate entrepreneurial opportunities as less feasible and desirable than were participants under the neutral condition ($M_{\text{anxiety}} = 1.99$; SD = .53; $M_{\text{neutral}} = 2.85$; SD = .38; t(63) = 1.68; p = .0000; d = 1.879). An OLS regression (Appendix C) showed the interaction of anxiety and emotional intelligence on opportunity evaluation ($\beta = .303$; p = .216) among female participants was not significant, rejecting Hypothesis 5b. As a supplement, for men we found no significant difference in opportunity evaluation between the anxiety and neutral conditions ($M_{\text{anxiety}} = 2.65$; SD = .53; $M_{\text{neutral}} = 2.84$; SD = .44; t(58) = 1.89; p = .06; d = .39).

Table 3. Manipulation Check and Hypothesis Test: Stereotype Threat, Anxiety, and Emotional Intelligence Under Different Emotion Conditions

Variables	Anxiety condition	Anxiety condition Neutral condition	
	M	t(p)	
Men			
Anxiety	3.13 (0.60)	2.89 (0.55)	-2.17 (0.000)
Opportunity evaluation	2.65 (0.53)	2.84 (0.44)	1.89 (0.061)
Emotional intelligence	3.47 (0.74)	3.38 (0.65)	/
N	30	30	/
Women			
Anxiety	3.18 (0.56)	2.77 (0.48)	-3.21 (0.002)

Opportunity evaluation	1.99 (0.53)	2.85 (0.38)	1.68 (0.000)
Emotional intelligence	3.49 (0.61)	3.59 (0.38)	/
N	31	34	/
All sample			
Anxiety	3.39 (0.50)	2.89 (0.55)	5.29 (0.000)
N	61	64	/

Study 3

To test the full mediation path, generalize, and provide external validity to the experimental results from Studies 1 and 2, we conducted a follow-up survey with a sample of female entrepreneurs. We tested the mediating, moderating, and moderated mediating effects.

Sample

We collected the female-entrepreneur sample from four entrepreneurship parks in Nanjing (n = 169) among startups founded within the last 3 years and employing 5 to 25 people. For each startup, a female founder or a core decision-maker replied. Of the 205 mailed questionnaires, we received 169 valid responses (response rate of 82.4%).

Measures

Dependent Variable. As in previous studies, opportunity evaluation was measured using three items with a 5-point scale ($\alpha = .882$; Goktan & Gunay, 2011; Gupta et al., 2014).

Independent Variable. Like the manipulation test in Study 1, stereotype threat was measured using seven items on a 5-point scale ($\alpha = .804$; Bergeron et al., 2006).

Mediating Variable. To measure anxiety, we adapted and developed two competence-related items based on K. Lee et al.'s (2011) original items ($\alpha = .828$): "I am worried that I may not do well in this business evaluation" and "I am anxious about poorly evaluating this business idea."

Moderating Variable. As in Studies 1 and 2, Study 3 measured emotional intelligence based on 16 items ($\alpha = .911$; Law et al., 2004).

Control Variables. Following Bernerth and Aguinis (2016), we included theoretically relevant variables, particularly considering age, entrepreneurial experience, entrepreneurial self-efficacy, core self-evaluation, and industry type, as control variables. First, increasing age is theoretically expected to influence opportunity evaluation through increased capital (e.g., human, social, and financial) and reduced risk willingness (Bohlmann et al., 2017). We measured age as respondents' exact age (Keh et al., 2002). Second, it is theoretically expected that entrepreneurs, through entrepreneurship experience, gain business knowledge and resources that influence their opportunity evaluation (Haynie et al., 2009). We measured entrepreneurial experience by the total number of launched businesses. Third, entrepreneurial self-efficacy involves individuals' beliefs regarding their capabilities to succeed during the startup process. This is theoretically expected to influence opportunity evaluation through self-confidence (Drnovšek et al., 2010).

Entrepreneurial self-efficacy was measured using four items on a 5-point scale (α = .851; Zhao et al., 2005). Further, core self-evaluation as a personal resource, representing fundamental evaluations of self-worth, competence, and capabilities (Judge et al., 1998), theoretically relates to opportunity evaluation (Simsek et al., 2010). Core self-evaluation was measured using 12 items on a 5-point scale (α = .926; Judge et al., 2003). Finally, Brush et al. (2009) suggested considering the industry's "meso" environment as central to studying women's entrepreneurship holistically. Characteristics of the industries in which women are embedded are theoretically expected to affect opportunity evaluation: Women in male-dominated industries evaluate opportunities less favorably and vice versa. Following the China Women's Development Program 2011–2020, we coded industries in which women account for less than 40% as male-dominated (coded 1) and industries with 40% or more women as balanced (coded 0; H. Yang & Zhang, 2019).

Descriptive Results

Table 4 shows the descriptive statistics and variables' correlations. The highest correlation was between anxiety and opportunity evaluation (r = -.416, p = .000), indicating multicollinearity was not a serious threat.

Table 4. Descriptive Statistics and Correlations of Study 3 Variables

Variables	M	SD	1	2	3	4
1. Age	41.776	8.241	1.000			
2. Entrepreneurial experience	2.100	0.847	0.117	1.000		
3. Entrepreneurial self-efficacy	3.176	0.616	-0.080	-0.026	1.000	
4. Core self-evaluation	3.362	0.775	-0.006	0.131*	-0.004	1.000
5. Industry type	0.482	0.501	0.106	-0.059	0.005	-0.123
6. Stereotype threat	2.933	0.621	-0.049	-0.211***	0.116	-0.030
7. Anxiety	3.726	0.740	-0.063	-0.386***	0.074	-0.160**
8. Opportunity evaluation	3.184	0.807	0.028	0.143*	0.227***	0.098
9. Emotional intelligence	3.494	0.633	0.032	-0.007	0.046	-0.093
	5	6	7	8	9	
5. Industry type	1.000					
6. Stereotype threat	-0.129*	1.000				
7. Anxiety	0.127	0.303***	1.000			
8. Opportunity evaluation	-0.080	-0.293***	-0.416***	1.000		
9. Emotional intelligence	0.103	0.090	0.052	0.042		

Note: All correlations above 0.13 are significant at p = .05, above 0.16 at p = .01, and above 0.21 at p = .001.

Main Effect and Mediating Effect Results

Table 5 shows regression results of the main and mediating effects, with significant results in the expected direction for Hypothesis 1 (Model 2: β = .294; p = .001; R^2_{adjusted} increased 36% from .149 to .202), Hypothesis 2 (Model 5: β = -.475; p = .000; R^2_{adjusted} increases 269% from .058 to .214), and Hypothesis 3 (Model 4: β = -.419; p = .000; R^2_{adjusted} increased 160% from .058 to .151).

Hypothesis 4 predicted that anxiety mediates the link between stereotype threat and opportunity evaluation. As Model 6 (Table 5) indicates, the effect of stereotype threat decreased $(\beta = -.405; p = .000; R^2_{adjusted})$ increased 70% from .151 to .257) when adding anxiety into the model. We used the ordinary version of bootstrapped confidence intervals (CIs; Hayes & Preacher, 2014) and Sobel's (1982) formal significance test to test mediation further.

Table 5. Linear Regression Predicting Anxiety and Opportunity Evaluation

	Anxiety			Opportunity evaluation		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Entrepreneur age	-0.002 (-	-0.002	0.004	0.004	0.003	0.003
	0.374)	(-0.385)	(0.519)	(0.546)	(0.399)	(0.435)
Entrepreneurial	-0.316***	-0.270***	0.125^{*}	0.059	-0.025	-0.050
experience	(-5.014)	(-4.322)	(1.722)	(0.841)	(-0.359)	(-0.727)
Entrepreneurial	0.074	0.041	0.307^{***}	0.354***	0.342***	0.370^{***}
self-efficacy	(0.868)	(0.496)	(3.124)	(3.770)	(3.806)	(4.217)
Core self-evaluation	-0.097	-0.092	0.077	0.070	0.031	0.033
	(-1.405)	(-1.382)	(0.969)	(0.935)	(0.422)	(0.464)
Industry type	0.141 (1.325)	0.193*	-0.110	-0.185	-0.043 (-	-0.107
		(1.858)	(0.904)	(-1.581)	0.387)	(0.963)
Stereotype threat		0.294***		-0.419***		-0.299***
		(3.446)		(4.366)		(-3.223)
Anxiety					-0.475***	-0.405***
					(-5.802)	(-4.921)
Constant	4.513***	3.618***	1.583***	2.858***	3.725***	4.325***
	(9.601)	(6.904)	(2.935)	(4.850)	(6.052)	(6.900)
R^2	0.174	0.230	0.086	0.181	0.242	0.288
Adjust_ R^2	0.149	0.202	0.058	0.151	0.214	0.257
$\triangle R^2$	0.149	0.053	0.058	0.093	0.156	0.106
F	6.919	8.128	3.071	6.018	8.680	9.352

Note: *p < .10; **p < .05; ***p < .01.

Bootstrapping corrects the skewed distribution of samples by sampling with replacement and provides the most accurate CI estimation. We bootstrapped 5,000 samples to obtain a 90% bias-corrected CIs for the mediation effect of anxiety. Results shown in Table 6 suggested that the indirect effect of stereotype threat on opportunity evaluation through anxiety was significantly negative (ab = -.113; 90% CI = [-.203, -.011]). The formal two-tailed Sobel significance test (z = 2.963; p = .003) confirmed these results. Thus, the results supported Hypothesis 4.

Table 6. Bootstrapped Indirect Effect Results of Mediation Effect: Stereotype Threat—Anxiety—Opportunity Evaluation (5,000 times)

Model	Coefficient	Boot SE	<i>LL</i> 90% CI	<i>UL</i> 90% CI	Sobel test
Total effect	-0.396	0.095	-0.554	-0.239	
Direct effect	-0.284	0.091	-0.435	-0.132	
Indirect effect	-0.113	0.050	-0.203	-0.011	z = 2.963, p = 0.003

Note. LL = lower limit; UL = upper limit; CI = confidence interval.

Moderating Effect Results

Table 7 shows the moderating effects of emotional intelligence. As depicted in Model 8 (Table 7), emotional intelligence significantly negatively moderated the relationship between stereotype threat and anxiety ($\beta = -.278$; p = .039; $R^2_{adjusted}$ increased 8% from .197 to .213), supporting Hypothesis 5a. Figure 3 plots the interaction, showing that higher stereotype threat increased anxiety among female entrepreneurs with low emotional intelligence and did not change anxiety for the women with high emotional intelligence. The results of Model 12 showed that the relationship between anxiety and opportunity evaluation moderated by emotional intelligence was not significant ($\beta = .146$; p = .185), rejecting Hypothesis 5b.

Table 7. Linear Regression Predicting Anxiety and Opportunity Evaluation

	Anxiety Opportunity evaluation					
	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Entrepreneur age	-0.002	-0.003	0.004	0.004	0.002	0.003
	(-0.386)	(-0.432)	(0.519)	(0.500)	(0.7361)	(0.383)
Entrepreneurial	-0.270***	-0.276***	0.057	0.054	-0.065	-0.058
experience	(-4.309)	(-4.445)	(0.809)	(0.765)	(-0.940)	(-0.842)
Entrepreneurial self-	0.041	0.019	0.350^{***}	0.339***	0.347^{***}	0.332***
efficacy	(0.492)	(0.227)	(3.730)	(3.580)	(3.951)	(3.763)
Core self-evaluation	-0.092	-0.080	0.077	0.083	0.048	0.045
	(-1.368)	(-1.196)	(1.020)	(1.095)	(0.688)	(0.643)
Industry type	0.193^{*}	0.158	-0.198*	-0.216*	-0.148	-0.163
	(1.836)	(1.497)	(-1.686)	(-1.810)	(-1.329)	(-1.458)
Stereotype threat	0.293***	0.294***	-0.429***	-0.429***	-0.303***	-0.283***
	(3.412)	(3.450)	(-4.456)	(-4.453)	(-3.267)	(-3.021)
Emotional	0.005	-0.015	0.100	0.090	0.084	0.084
intelligence	(0.063)	(-0.178)	(1.090)	(0.976)	(0.979)	(0.984)
Stereotype threat *		-0.278**		-0.138 (-	-0.258*	-0.407**
emotional		(-2.081)		0.916)	(-1.815)	(-2.253)
intelligence						
Anxiety					-0.430***	-0.427***
					(5.196)	(5.173)
Anxiety * emotional						0.146
intelligence	***		***	***	***	(1.332)
Constant	3.602***	3.751***	2.549***	2.623***	4.236***	4.213***
	(6.174)	(6.446)	(3.899)	(3.980)	(6.178)	(6.157)
R^2	0.230	0.250	0.187	0.192	0.308	0.316
Adjust R^2	0.197	0.213	0.152	0.153	0.269	0.273
$\triangle R^2$	0.197	0.024	0.151	0.001	0.143	0.004
F	6.925	6.725	5.334	4.768	7.922	7.342

Note. *p < .10; **p < .05; ***p < .01.

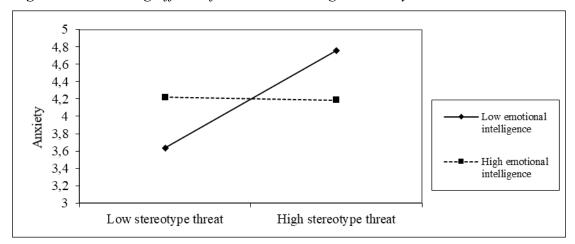


Figure 3. Moderating Effects of Emotional Intelligence, Study 4

To test the moderated mediation effect of emotional intelligence on relationships among stereotype threat, anxiety, and opportunity evaluation, we examined the conditional indirect effect of stereotype threat on opportunity evaluation (through anxiety) at three emotional intelligence values: the mean and one standard deviation above and below the mean. The results (Table 8) indicated that all three conditional indirect effects were negative and significantly different from zero. Bootstrap CIs corroborated these results. Thus, emotional intelligence moderated the indirect and negative effect of stereotype threat on opportunity evaluation through anxiety.

Table 8. Bootstrapped Indirect Effect Results of Moderated Mediation Effect (5,000 times)

Model	Group	Coefficient	Boot SE	<i>LL</i> 90% CI	<i>UL</i> 90% CI
ST-Anxiety-OE	EI _L (M–1SD)	-0.189	0.096	-0.346	-0.028
	$EI_{M}(M)$	-0.121	0.051	-0.207	-0.041
	$EI_H(M+1SD)$	-0.038	0.065	-0.141	-0.008

Note. ST = Stereotype Threat; OE = Opportunity Evaluation; LL = lower limit; UL = upper limit; CI = confidence interval.

Post Hoc Analysis

In our analysis, we treated emotional intelligence as a one-factor model. Although all models provided satisfying Cronbach alphas, we conducted post hoc confirmative factor analysis. Our confirmative-factor models showed that the four-dimensional emotional

intelligence model fit better than a one-factor model for all studies. We then ran our moderation models with the subdimensions. That analysis indicated self-emotion appraisals (Studies 1 and 3) and emotion regulation (Study 3) drove our results of moderation between stereotype and anxiety.

The two-randomized-experiment strategy to test the mediation hypothesis (Stone-Romero and Rosopa, 2011) did not experimentally test the full mediation path. As a final robustness test, we conducted a new classroom between-subjects experiment with 204 MBA students from a public university in Nanjing. We used the same instrument (1-page newspaper article) and manipulation 2 (gender) x 3 (article: control vs. masculine stereotype vs. feminine stereotype) as in Study 1. Participants then evaluated the opportunity using the same 3-item scale as in Study 2 and reported their feelings of concern using two items adapted from K. Lee et al. (2011). Appendix A.1 provides additional details. The robustness experiment supported that stereotype threat negatively affects women's opportunity evaluation (Hypothesis 3), and anxiety mediates this impact (Hypothesis 4).

Discussion

Stereotype threat among women is previously suggested as a potential reason, among others, for women's underrepresentation in entrepreneurship (Marlow, 2020), because it potentially causes women to evaluate opportunities pessimistically (Gupta et al., 2014). This study develops an affective conceptual model to explain the relationship between stereotype threat and opportunity evaluation, investigated in the underexamined context of China (Swab et al., 2021). We introduce anxiety as an important stereotype threat mechanism ("how") and emotional intelligence as a boundary condition ("when"), enabling women to cope with stereotype threat in opportunity evaluation situations. Our affective conceptual model suggests

the impact of stereotype threat on opportunity evaluation functions through anxiety conditioned on emotional intelligence. We advance experimental research in entrepreneurship by carrying out two experiments following the two-randomized-experiment strategy (Stone-Romero & Rosopa, 2011) with music as the experimental stimuli (Brooks & Schweitzer, 2011). Together with a survey to strengthen external validity, these leave a unique combination of data collections to study the stereotype threat–opportunity evaluation link. Our results provide previously unidentified insights. Mainly, situational anxiety mediates the relationship between stereotype threat and opportunity evaluation, and the magnitude of the indirect effect depends on women's emotional intelligence levels. Given that women vary in their capabilities to recognize, express, understand, and manage their own and others' emotions (Salovey et al., 2004), these insights question the existing entrepreneurship assumption that stereotype threat has a universal, homogenous effect on women.

Theoretical Contributions

Our research provides at least three important theoretical contributions. First, we demonstrate the presence of stereotype threat in an entrepreneurial context. It implies that the destructive effect of gender stereotyping on women's entrepreneurship is more complex than research previously anticipated (e.g., Alsos & Ljunggren, 2017; Kanze et al., 2018; M. Lee & Huang, 2018; T. Yang & del Carmen Triana, 2019). Past research advocated that negative gender stereotypes shape resource providers' gender bias and limit female entrepreneurs' access to critical entrepreneurial resources (Balachandra et al., 2019; M. Lee & Huang, 2018; T. Yang & del Carmen Triana, 2019). We illustrate that gender stereotype-based expectations affect not only whom resource providers see as "fitting" the preconceived notion of a successful entrepreneur but also the women through their perceptions of the stereotype. We demonstrate how a

stereotype threat effect traps women by associating successful entrepreneurs with masculine characteristics; thus, the women evaluate opportunities more pessimistically. In their minds, gender stereotype threat creates anxiety, hinders optimistic opportunity evaluation, and thus constrains their entrepreneurship.

This finding shows how public gender stereotype information also manifests its damage through psychological stereotype threat effects within the women. The fact that stereotype threat can predict gender differences in opportunity evaluation provides interesting potential explanations for the gender gap and inequality in entrepreneurship. In early stages, women evaluate opportunities less favorably due to stereotype threat and perceive employment as more attractive than self-employment (Klyver et al., 2020). This can partly explain women's lower entry rate into entrepreneurship (Klyver et al., 2013).

Second, our findings contribute to research on the emotive view of entrepreneurship by integrating the specific situational anxiety emotion with emotional intelligence as the capability to handle emotions. Over the past decades, researchers have regarded entrepreneurship as an emotional rollercoaster of rapidly alternating, extremely positive and negative emotions (Baron, 2008; Cardon et al., 2012; De Cock et al., 2020; Foo, 2011; Huy & Zott, 2019; Foo et al., 2009; Uy et al., 2021) that play a crucial role in opportunity evaluation (Foo, 2011; Grichnik et al., 2010; Welpe et al., 2012). Inspired by that view, our paper introduced situational anxiety as an affective mechanism linking stereotype threat and opportunity evaluation. Our results accentuate stereotype threat as a salient "mental predicament" arousing situational anxiety and thus resulting in women evaluating opportunities less favorably. Moreover, this is consistent with propositions to attach more attention to specific emotions instead of their valences of *positive* or *negative* (Welpe et al., 2012).

More importantly, we simultaneously present a nuanced scenario of how a specific emotion (situational anxiety), together with the capability to handle emotions (emotional intelligence), influences opportunity evaluation. In this way, emotional intelligence functions as a boundary condition and explains why stereotype threat affects women heterogeneously. We illustrate how emotional intelligence serves as a strong agentic tool to help cope with negative emotions and mitigate stereotype threat influences.

Entrepreneurship is an emotional journey; those engaged in it try to cope and manage emotions (De Cock et al., 2020; Grichnik et al., 2010; Thompson et al., 2020). We extend current knowledge on entrepreneurs' emotional intelligence (e.g., Ingram et al., 2019; Ngah & Salleh, 2015; Treffers et al., 2019), showing its positive impact on empowering women. Emotional intelligence plays an important role in work, relationships, and education (Mayer et al., 2008). In an entrepreneurship context, women face disadvantages because of role incongruity or "lack of fit" (M. Lee & Huang, 2018) between their gender stereotypes and images of successful entrepreneurs (Prentice & Carranza, 2002). Emotional intelligence empowers women to cope with the "mental predicament" that negative gender stereotypes cause. Specifically, a high emotional intelligence level enables women to understand the source of negative emotions and correctly attribute these emotions to external stigmatization rather than a lack of capability. They thus enhance their self-worth in evaluating entrepreneurial opportunities. With this kind of self-worth, women are less likely to accept a position of inferiority and discrimination; instead, they have more power to make proper decisions and access information and resources.

Third, by studying stereotype threat in an entrepreneurship context, we advance existing research on stereotype threat (e.g., Kinias & Sim, 2016; Steele, 1997; Steele & Aronson, 1995, 1998). Most stereotype threat research has been conducted in experimental settings; only a

handful of studies were in real-world settings (Cadaret et al., 2017; Shewach et al., 2019). Some scholars critically argued that stereotype threat is evident only in low-risk operational tests (Sackett & Ryan, 2012), and its effects have negligible real-world utility (Cadaret et al., 2017).

Our survey provides further evidence of stereotype threat theory and its presence in natural entrepreneurial settings, thereby reducing potential concerns about its external validity. Stereotype threat research also has been criticized for its lack of boundary conditions (Swab et al., 2021) which limits its usefulness. By unveiling how stereotype threat affects entrepreneurial outcomes and the conditions under which this is valid, we help develop unresolved issues and integrate stereotype threat theory with an emotive view of opportunity evaluation (Foo, 2011; Mary et al., 2016; Welpe et al., 2012). We illustrate one possible form of resilience (emotional intelligence) as a boundary condition that helps women "conserve executive resources in the face of stereotype threat" (Liu et al., 2021, p. 34). Accordingly, our paper responds to calls in stereotype threat research for more field surveys and boundary conditions to strengthen the stereotype threat theory's efficacy and usefulness (Swab et al., 2021).

Stereotype threat manifests its destructive effect on women's leadership, career advancement, and promotion (e.g., Hoyt & Murphy, 2016; Kinias & Sim, 2016; Lavaysse & Probst, 2019). However, most research has been conducted in large, established organizations to cast light on how stereotype threat affects women's *existing* career paths (promotion and job performance). Moving to the entrepreneurship context enables us to study how stereotype threat affects *new* career paths. A person's career typically involves some mobility over a lifetime—between employment and self-employment or among organizations as an employee (Sørensen & Sharkey, 2014). We show that stereotype threat negatively affects performance within existing careers and discourages moving into new career paths associated with stereotypes.

Practical Implications

A masculine entrepreneurship discourse among mass media, entrepreneurs, and the public dominates in many countries today. From our study, we can conclude that such discourse makes women evaluate opportunities less favorably and potentially discourages them from entering entrepreneurship. This discourse could create gender gaps that damage society in the long run by reducing women's talents and contributions to entrepreneurship.

Although discouraging, our study also suggests possible solutions. The most obvious is to work directly with the stereotypes prevalent in society (Liu et al., 2021), primarily promoting a more balanced or gender-integrative entrepreneurship model (Clark Muntean & Ozkazanc-Pan, 2015). Mass media can increase coverage of diverse representations of success, covering entrepreneurship stories about maximation of profit, flexibility, or value. For instance, emphasizing the vital role of feminine characteristics in entrepreneurship, such as caring for the environment and community, reflects a value maximation to multiple stakeholders.

Because changing society's stereotypes about entrepreneurship may be a challenging and slow process due to conflicting interests, it is also important to focus on what individuals can do. Our results show the importance of being emotionally intelligent, a learnable agentic ability (Tucker et al., 2000). Existing studies on stereotype threat also encourage practical interventions such as affirming personal value by writing (Kinias & Sim, 2016), setting role models (McGlone et al., 2006), and reducing the number and explicitness of stereotype cues (Hoyt, 2010) to reduce negative stereotype influences. Some organizations and educational systems already have increased attention to these interventions. However, encouraging women to participate in mental training courses to better cope with entrepreneurship's emotional challenges could strengthen their efforts.

Limitations and Future Research

Our study has limitations that point to new directions for future research. First, we recognize that a study of gender issues in entrepreneurship should consider gender identity. We admittedly conflated gender with sex in our experiments and survey by relying on biological sex to distinguish women from men. Marlow and Martinez Dy (2017) proposed that gender is not a simple male–female variable but a dynamic social structure with diversified gender identification and practices (e.g., feminine men, masculine women, and lesbian, bisexual, gay, transgender, and queer (LGBTQ+). Stereotype threat effects are associated closely with identification. We believe that such a complex notion of gender identity and related gender practices likely influences stereotype threat effects (Schmader, 2002). Accordingly, we encourage future research to incorporate LGBTQ+ in gender identification to understand gender in entrepreneurship better.

Second, we studied opportunity evaluation as an event at one point in time when evaluating a fixed venture idea. However, opportunity evaluation is seldom a simple task completed once but a sequence of activities over time (Jiang et al., 2021). Throughout the entrepreneurial process, entrepreneurs likely switch between feelings, positive and negative, which may involve further complexity and increase emotional strain (De Cock et al., 2020). Future research can solve issues related to a more complex emotional mix by delving into how anxiety and other emotions, together with emotional intelligence, interact and function during an opportunity evaluation process (including opportunity exploitation) over time.

Third, our study focused on how emotional intelligence helps individuals reappraise the negative emotions stereotype threat induces, also termed a *resilience-based stereotype threat intervention* (Liu et al., 2021). This focus allowed us to explore individual agency in coping with stereotype threat. However, Liu et al. (2021) argued that, although more difficult to change,

belief-based and identity-based interventions are more effective in countering stereotype threat in the long term. Belief-based interventions primarily include changing individuals' beliefs about the negatively stereotyped group to which they belong. In contrast, identity-based interventions activate single positive or multiple identities to reduce the stereotyped group's distinctiveness. We suggest future research explore in more depth how belief- and identity-based interventions can help counter the stereotype threat that keeps women from entrepreneurship. Research could be field studies conducted in environments where stereotypes are salient to different degrees or by experimental studies that manipulate individuals' beliefs about the stereotyped group, sense of belonging to the group, and perceptions of their identities as part of the group.

Conclusions

This study highlighted stereotype threat's anxiety mechanism and emotional intelligence as a personal boundary condition in women's opportunity evaluation. We find that women exposed to gendered stereotype threat evaluate opportunities less favorably because such threats activate anxiety, and women with high emotional intelligence levels better navigate and cope with the threat. These results provide a plausible explanation for existing gender gaps in entrepreneurship and insight into how societies might improve monetarily and nonmonetarily by shaping future mass-media discourse, removing gender stereotyping, and encouraging talented women into entrepreneurship.

References

- Achtenhagen, L., & Welter, F. (2011). "Surfing on the ironing board": The representation of women's entrepreneurship in German newspapers. *Entrepreneurship & Regional Development*, 23(9–10), 763–786. https://doi.org/10.1080/08985626.2010.520338
- Adom, K., & Anambane, G. (2019). Understanding the role of culture and gender stereotypes in women entrepreneurship through the lens of the stereotype threat theory. *Journal of*

- Entrepreneurship in Emerging Economies, 12(1), 100-124. https://doi.org/10.1108/JEEE-07-2018-0070.
- Ahl, H. (2006). Why research on women entrepreneurs needs new directions. *Entrepreneurship Theory and Practice*, 30(5), 595–621. https://doi.org/10.1111/j.1540-6520.2006.00138.x
- Ahl, H., & Nelson, T. (2015). How policy positions women entrepreneurs: A comparative analysis of state discourse in Sweden and the United States. *Journal of Business Venturing*, 30(2), 273–291. https://doi.org/10.1016/j.jbusvent.2014.08.002
- Alsos, G. A., & Ljunggren, E. (2017). The role of gender in entrepreneur–investor relationships: A signaling theory approach. *Entrepreneurship Theory and Practice*, 41(4), 567–590. https://doi.org/10.1111/etp.12226
- Balachandra, L., Briggs, T., Eddleston, K., & Brush, C. (2019). Don't pitch like a girl!: How gender stereotypes influence investor decisions. *Entrepreneurship Theory and Practice*, 43(1), 116-137. https://doi.org/10.1177/1042258717728028
- Baron, R. A. (2000). Psychological perspectives on entrepreneurship: Cognitive and social factors in entrepreneurs' success. *Current Directions in Psychological Science*, *9*(1), 15–18. https://doi.org/10.1111%2F1467-8721.00050
- Baron, R. A. (2008). The role of affect in the entrepreneurial process. *Academy of Management Review*, 33(2), 328–340. https://doi.org/10.5465/amr.2008.31193166
- Bergeron, D. M., Block, C. J., & Echtenkamp, A. (2006). Disabling the able: Stereotype threat and women's work performance. *Human Performance*. *19*(2), 133–158. https://doi.org/10.1207/s15327043hup1902_3
- Bernerth, J. B., & Aguinis, H. (2016). A critical review and best-practice recommendations for control variable usage. *Personnel Psychology*, 69(1), 229–283. https://doi.org/10.1111/peps.12103
- Bohlmann, C., Rauch, A., & Zacher, H. (2017). A lifespan perspective on entrepreneurship: Perceived opportunities and skills explain the negative association between age and entrepreneurial activity. *Frontiers in Psychology*, 8. https://doi.org/10.3389/fpsyg.2017.02015
- Bridges, J. S. (1988). Sex differences in occupational performance expectations. *Psychology of Women Quarterly*, 12(1), 75–90. http://dx.doi.org/10.1111/j.14716402.1988.tb00928.x
- Brooks, A. W., & Schweitzer, M. E. (2011). Can Nervous Nelly negotiate? How anxiety causes

- negotiators to make low first offers, exit early, and earn less profit. *Organizational Behavior and Human Decision Processes*, 115(1), 43–54. https://doi.org/10.1016/j.obhdp.2011.01.008
- Bruni, A., Gherardi, S., & Poggio, B. (2004). Doing gender, doing entrepreneurship: An ethnographic account of intertwined practices. *Gender, Work & Organization*, 11(4), 406–429. https://doi.org/10.1111/j.1468-0432.2004.00240.x
- Brush, C. G., De Bruin, A., & Welter, F. (2009). A gender-aware framework for women's entrepreneurship. *International Journal of Gender and Entrepreneurship*, *I*(1), 8–24. https://doi.org/10.1108/17566260910942318
- Cadaret, M. C., Hartung, P. J., Subich, L. M., & Weigold, I. K. (2017). Stereotype threat as a barrier to women entering engineering careers. *Journal of Vocational Behavior*, 99(4), 40–51. https://doi.org/10.1016/j.jvb.2016.12.002
- Cardon, M. S., Foo, M. D., Shepherd, D., & Wiklund, J. (2012). Exploring the heart:

 Entrepreneurial emotion is a hot topic. *Entrepreneurship Theory and Practice*, 36(1), 1–
 10. https://doi.org/10.1111/j.1540-6520.2011.00501.x
- Clark Muntean, S., & Ozkazanc-Pan, S. C. (2015). A gender integrative conceptualization of entrepreneurship. *New England Journal of Entrepreneurship*, *I*(19), 27–40. https://doi.org/10.1108/NEJE-18-01-2015-B002
- Davies, P. G., Spencer, S. J., Quinn, D. M., & Gerhardstein, R. (2002). Consuming images: How television commercials that elicit stereotype threat can restrain women academically and professionally. *Personality and Social Psychology Bulletin*, 28(12), 1615–1628. https://doi.org/10.1177/014616702237644
- De Cock, R., Denoo, L., & Clarysse, B. (2020). Surviving the emotional rollercoaster called entrepreneurship: The role of emotion regulation. *Journal of Business Venturing*, *35*(2), Article 105936. https://doi.org/10.1016/j.jbusvent.2019.04.004
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*(1), 5–18. https://doi.org/10.1037/0022-3514.56.1.5
- Drnovšek, M., Wincent, J., & Cardon, S. C. (2010). Entrepreneurial self-efficacy and business start-up: Developing a multi-dimensional definition. *International Journal of Entrepreneurial Behaviour & Research*, 16(4), 329–348.

- https://doi.org/10.1108/13552551011054516
- Erlebacher, A. (1977). Design and analysis of experiments contrasting the within- and between-subjects manipulation of the independent variable. *Psychological Bulletin*, *84*(2), 212–219. https://doi.org/10.1037/0033-2909.84.2.212
- Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition & Emotion*, 6(6), 409-434. https://doi.org/10.1080/02699939208409696
- Fang He, V., Sirén, C., Singh, S., Solomon, G., & von Krogh, G. (2018). Keep calm and carry on: Emotion regulation in entrepreneurs' learning from failure. *Entrepreneurship Theory and Practice*, 42(4), 605–630. https://doi.org/10.1177/1042258718783428
- Foo, M. D. (2011). Emotions and entrepreneurial opportunity evaluation. *Entrepreneurship Theory and Practice*, *35*(2), 375–393. https://doi.org/10.1111/j.1540-6520.2009.00357.x
- Foo, M. D., Uy, M. A., & Baron, R. A. (2009). How do feelings influence effort? An empirical study of entrepreneurs' affect and venture effort. *Journal of Applied Psychology*, 94(4), 1086. https://doi.org/10.1037/a0015599
- Forgas, J. P., & George, J. M. (2001). Affective influences on judgments and behavior in organizations: An information processing perspective. *Organizational Behavior and Human Decision Processes*, 86(1), 3–34. https://doi.org/10.1006/obhd.2001.2971
- Gino, F., Brooks, A. W., & Schweitzer, M. E. (2012). Anxiety, advice, and the ability to discern: Feeling anxious motivates individuals to seek and use advice. *Journal of Personality and Social Psychology*, 102(3), 497–512. http://dx.doi.org/10.1037/a0026413
- Goktan, A. B., & Gunay, G. (2011). Is entrepreneurial cognition culturally bound? A comparative study conducted in Turkey and the United States. *Journal of Small Business & Entrepreneurship*, 24(4), 455–470. https://doi.org/10.1080/08276331.2011.10593548
- Grichnik, D., Smeja, A., & Welpe, I. (2010). The importance of being emotional: How do emotions affect entrepreneurial opportunity evaluation and exploitation? *Journal of Economic Behavior & Organization*, 76(1), 15–29. https://doi.org/10.1016/j.jebo.2010.02.010
- Gruber, M., Kim, S. M., & Brinckmann, J. (2015). What is an attractive business opportunity? An empirical study of opportunity evaluation decisions by technologists, managers, and entrepreneurs. *Strategic Entrepreneurship Journal*, *9*(3), 205–225.

- https://doi.org/10.1002/sej.1196
- Gupta, V. K., & Bhawe, N. M. (2007). The influence of proactive personality and stereotype threat on women's entrepreneurial intentions. *Journal of Leadership & Organizational Studies*, 13(4), 73-85. https://doi.org/10.1177/10717919070130040901
- Gupta, V. K., Goktan, A. B., & Gunay, G. (2014). Gender differences in evaluation of new business opportunity: A stereotype threat perspective. *Journal of Business Venturing*, 29(2), 273–288. https://doi.org/10.1016/j.jbusvent.2013.02.002
- Gupta, V. K., & Turban, D. B. (2012). Evaluation of new business ideas: Do gender stereotypes play a role? *Journal of Managerial Issues*, 24(2), 140–156.
- Gupta, V. K., Turban, D. B., & Bhawe, N. M. (2008). The effect of gender stereotype activation on entrepreneurial intentions. *Journal of Applied Psychology*, *93*(5), 1053–1061. https://doi.org/10.1037/0021-9010.93.5.1053
- Gupta, V. K., Turban, D. B., & Pareek, A. (2013). Differences between men and women in opportunity evaluation as a function of gender stereotypes and stereotype activation. *Entrepreneurship Theory and Practice*, 37(4), 771–788. https://doi.org/10.1111/j.1540-6520.2012.00512.x
- Gupta, V. K., Wieland, A. M., & Turban, D. B. (2019). Gender characterizations in entrepreneurship: A multi-level investigation of sex-role stereotypes about high-growth, commercial, and social entrepreneurs. *Journal of Small Business Management*, *57*(1), 131–153. https://doi.org/10.1111/jsbm.12495
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451–470. https://doi.org/10.1111/bmsp.12028
- Haynie, J. M., Shepherd, D. A., & McMullen, J. S. (2009). An opportunity for me? The role of resources in opportunity evaluation decisions. *Journal of Management Studies*, 46(3), 337–361. https://doi.org/10.1111/j.1467-6486.2009.00824.x
- Henry, C., Foss, L., Fayolle, A., Walker, E., & Duffy, S. (2015). Entrepreneurial leadership and gender: Exploring theory and practice in global contexts. *Journal of Small Business Management*, *53*(3), 581–586. https://doi.org/10.1111/jsbm.12174
- Hess, T. M., Hinson, J. T., & Hodges, E. A. (2009). Moderators of and mechanisms underlying stereotype threat effects on older adults' memory performance. *Experimental Aging*

- Research, 35(2), 153–177. https://doi.org/10.1080/03610730802716413
- Hoyt, C. L. (2010). Women, men, and leadership: Exploring the gender gap at the top. *Social and Personality Psychology Compass*, 4(7), 484–498. https://doi.org/10.1111/j.1751-9004.2010.00274.x
- Hoyt, C. L., & Murphy, S. E. (2016). Managing to clear the air: Stereotype threat, women, and leadership. *Leadership Quarterly*, 27(3), 387–399. https://doi.org/10.1016/j.leaqua.2015.11.002
- Huy, Q., & Zott, C. (2019). Exploring the affective underpinnings of dynamic managerial capabilities: How managers' emotion regulation behaviors mobilize resources for their firms. *Strategic Management Journal*, 40(1), 28–54. https://doi.org/10.1002/smj.2971
- Ingram, A., Peake, W. O., Stewart, W., & Watson, W. (2019). Emotional intelligence and venture performance. *Journal of Small Business Management*, *57*(3), 780–800. https://doi.org/10.1111/jsbm.12333
- Isen, A. M., & Shalker, T. E. (1982). The effect of feeling state on evaluation of positive, neutral, and negative stimuli: When you "accentuate the positive," do you "eliminate the negative?" *Social Psychology Quarterly*, 45(1), 58–63. https://doi.org/10.2307/3033676
- Jiang, Y. D., Straub, C., Klyver, K., & Mauer, R. (2021). Unfolding refugee entrepreneurs' opportunity-production process: Patterns and embeddedness. *Journal of Business Venturing*, 36(5), Article 106138. https://doi.org/10.1016/j.jbusvent.2021.106138
- Johns, M., Schmader, T., & Martens, A. (2005). Knowing is half the battle: Teaching stereotype threat as a means of improving women's math performance. *Psychological Science*, *16*(3), 175–179. https://doi.org/10.1111/j.0956-7976.2005.00799.x
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The Core Self-Evaluations Scale: Development of a measure. *Personnel Psychology*, 56(2), 303–331. https://doi.org/10.1111/j.1744-6570.2003.tb00152.x
- Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology*, 83(1), 17–34. https://doi.org/10.1037/0021-9010.83.1.17
- Kanze, D., Huang, L., Conley, M. A., & Higgins, E. T. (2018). We ask men to win and women not to lose: Closing the gender gap in startup funding. *Academy of Management Journal*, 61(2), 586–614. https://doi.org/10.5465/amj.2016.1215

- Keh, H. T., Der Foo, M., & Lim, B. C. (2002). Opportunity evaluation under risky conditions: The cognitive processes of entrepreneurs. *Entrepreneurship Theory and Practice*, 27(2), 125–148. https://doi.org/10.1111/1540-8520.00003
- Kinias, Z., & Sim, J. (2016). Facilitating women's success in business: Interrupting the process of stereotype threat through affirmation of personal values. *Journal of Applied Psychology*, *101*(11), 1585–1597. https://doi.org/10.1037/apl0000139
- Klyver, K., Nielsen, S. L., & Evald, M. R. (2013). Women's self-employment: An act of institutional (dis)integration? A multilevel, cross-country study. *Journal of Business Venturing*, 28(4), 474–488. https://doi.org/10.1016/j.jbusvent.2012.07.002
- Klyver, K., Steffens, P., & Lomberg, C. (2020). Having your cake and eating it too? A two-stage model of the impact of employment and parallel job search on hybrid nascent entrepreneurship. *Journal of Business Venturing*, *35*(5), Article 106042. https://doi.org/10.1016/j.jbusvent.2020.106042
- Lavaysse, L. M., & Probst, T. M. (2019). Stereotype threat: impacts for women at work. In A. S. Antoniou, C. Cooper, & C. Gatrell (Eds.), *Women, business and leadership* (pp. 347–361). Edward Elgar.
- Law, K. S., Wong, C. S., & Song, L. J. (2004). The construct and criterion validity of emotional intelligence and its potential utility for management studies. *Journal of Applied Psychology*, 89(3), 483–496. https://doi.org/10.1037/0021-9010.89.3.483
- Lee, K., Kim, H., & Vohs, K. D. (2011). Stereotype threat in the marketplace: Consumer anxiety and purchase intentions. *Journal of Consumer Research*, *38*(2), 343–357. https://doi.org/10.1086/659315
- Lee, M., & Huang, L. (2018). Gender bias, social impact framing, and evaluation of entrepreneurial ventures. *Organization Science*, *29*(1), 1–16. https://doi.org/10.1287/orsc.2017.1172
- Liu, S., Liu, P., Wang, M., & Zhang, B. (2021). Effectiveness of stereotype threat interventions:

 A meta-analytic review. *Journal of Applied Psychology*, 106(6), 921–949.

 https://doi.org/10.1037/apl0000770
- Maner, J. K., & Schmidt, N. B. (2006). The role of risk avoidance in anxiety. *Behavior Therapy*, 37(2), 181–189. https://doi.org/10.1016/j.beth.2005.11.003
- Marlow, S. (2020). Gender and entrepreneurship: Past achievements and future possibilities.

- *International Journal of Gender and Entrepreneurship, 12*(1), 39–52. https://doi.org/10.1108/IJGE-05-2019-0090
- Marlow, S., & Martinez Dy, A. (2018). Annual review article: Is it time to rethink the gender agenda in entrepreneurship research? *International Small Business Journal*, *36*(1), 3–22. https://doi.org/10.1177/0266242617738321
- Mary George, N., Parida, V., Lahti, T., & Wincent, J. (2016). A systematic literature review of entrepreneurial opportunity recognition: insights on influencing factors. *International Entrepreneurship and Management Journal*, 12(2), 309-350. https://doi.org/10.1007/s11365-014-0347-y
- Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, *59*, 507–536.

 https://doi.org/10.1146/annurev.psych.59.103006.093646
- McGlone, M. S., Aronson, J., & Kobrynowicz, D. (2006). Stereotype threat and the gender gap in political knowledge. *Psychology of Women Quarterly*, *30*(4), 392–398. https://doi.org/10.1111/j.1471-6402.2006.00314.x
- Ngah, R., & Salleh, Z. (2015). Emotional intelligence and entrepreneurs' innovativeness towards entrepreneurial success: A preliminary study. *American Journal of Economics*, *5*(2), 285–290. https://doi.org/10.5923/c.economics.201501.37
- Nguyen, H. H. D., & Ryan, A. M. (2008). Does stereotype threat affect test performance of minorities and women? A meta-analysis of experimental evidence. *Journal of applied psychology*, 93(6), 1314-1334. https://doi.org/10.1037/a0012702
- Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes.

 *Psychology of Women Quarterly, 26(4), 269–281. https://doi.org/10.1111/1471-6402.t01-1-00066
- Pronin, E., Steele, C. M., & Ross, L. (2004). Identity bifurcation in response to stereotype threat: Women and mathematics. *Journal of Experimental Social Psychology*, 40(2), 152–168. https://doi.org/10.1016/S0022-1031(03)00088-X
- Raghunathan, R., & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior and Human Decision Processes*, 79(1), 56–77. https://doi.org/10.1006/obhd.1999.2838

- Raghunathan, R., Pham, M. T., & Corfman, K. P. (2006). Informational properties of anxiety and sadness, and displaced coping. *Journal of Consumer Research*, 32(4), 596–601. https://doi.org/10.1086/500491
- Sackett, P. R., & Ryan, A. M. (2012). Concerns about generalizing stereotype threat research findings to operational high-stakes testing. In M. Inzlicht & T. Schmader (Eds.), Stereotype threat: Theory, process, and application (pp. 249–263). Oxford University Press.
- Salovey, P., Mayer, J., & Caruso, D. (2004). Emotional intelligence: Theory, findings, and implications. *Psychological Inquiry*, *15*(3), 197–215. https://doi.org/10.1207/s15327965pli1503_02
- Schmader, T. (2002). Gender identification moderates stereotype threat effects on women's math performance. *Journal of Experimental Social Psychology*, *38*(2), 194–201. https://doi.org/10.1006/jesp.2001.1500
- Schmader, T., & Beilock, S. 2012. An integration of processes that underlie stereotype threat. In M. Inzlicht & T. Schmader (Eds.), *Stereotype threat: Theory, process, and application* (pp. 34–50). Oxford University Press.
- Schmader, T., Forbes, C. E., Zhang, S., & Berry Mendes, W. (2009). A metacognitive perspective on the cognitive deficits experienced in intellectually threatening environments. *Personality and Social Psychology Bulletin*, *35*(5), 584–596. https://doi.org/10.1177/0146167208330450
- Schmader, T., Johns, M., & Forbes, C. (2008). An integrated process model of stereotype threat effects on performance. *Psychological Review*, *115*(2), 336–356. https://doi.org/10.1037/0033-295X.115.2.336
- Schwarz, N. (2000). Emotion, cognition, and decision making. *Cognition & Emotion*, 14(4), 433–440. https://doi.org/10.1080/026999300402745
- Sherman, D. K. (2013). Self-affirmation: Understanding the effects. *Social and Personality Psychology Compass*, 7(11), 834–845. https://doi.org/10.1111/spc3.12072
- Shewach, O. R., Sackett, P. R., & Quint, S. (2019). Stereotype threat effects in settings with features likely versus unlikely in operational test settings: A meta-analysis. *Journal of Applied Psychology*, 104(12), 1514–1534. https://doi.org/10.1037/apl0000420
- Simsek, Z., Heavey, C., & Veiga, J. F. (2010). The impact of CEO core self-evaluation on the

- firm's entrepreneurial orientation. *Strategic Management Journal*, *31*(1), 110–119. https://doi.org/10.1002/smj.800
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology* (pp. 290–312). Jossey-Bass.
- Sørensen, J. B., & Sharkey, A. J. (2014). Entrepreneurship as a mobility process. *American Sociological Review*, 79(2), 328–349. https://doi.org/10.1177/0003122414521810
- Spencer, S. J., Logel, C., & Davies, P. G. (2016). Stereotype threat. *Annual Review of Psychology*, 67, 415–437. https://doi.org/10.1146/annurev-psych-073115-103235
- Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, *35*(1), 4–28. https://doi.org/10.1006/jesp.1998.1373
- Spielberger, C. D., Anton, W. D., & Bedell, J. (1976). The nature and treatment of test anxiety. In M. Zuckerman & C. D. Spielberger (Eds.), *Emotions and anxiety: New concepts, methods, and applications* (pp. 317–345). Lawrence Erlbaum.
- Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, *52*(6), 613–629. https://doi.org/10.1037/0003-066X.52.6.613
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 69(5), 797–811. https://doi.org/10.1037/0022-3514.69.5.797
- Steele, C. M., & Aronson, J. (1998). Stereotype threat and the test performance of academically successful African Americans. In C. Jencks & M. Phillips (Eds.), *The Black–White test score gap* (pp. 401–427). Brookings.
- Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. *Advances in Experimental Social Psychology*, *34*, 379–440. https://doi.org/10.1016/S0065-2601(02)80009-0
- Stone-Romero, E. F., & Rosopa, P. J. (2011). Experimental tests of mediation models: Prospects, problems, and some solutions. *Organizational Research Methods*, *14*(4), 631–646. https://doi.org/10.1177/1094428110372673
- Swab, R. G., Javadian, G., Gupta, V. K., & Pierce, C. A. (2021). Stereotype threat theory in organizational research: Constructive analysis and future research agenda. *Group &*

- *Organization Management*. Advanced online publication. https://doi.org/10.1177/10596011211016989
- Tellhed, U., & Adolfsson, C. (2018). Competence and confusion: How stereotype threat can make you a bad judge of your competence. *European Journal of Social Psychology*, 48(2), O189-O197. https://doi.org/10.1002/ejsp.2307
- Thompson, N. A., van Gelderen, M., & Keppler, L. (2020). No need to worry? Anxiety and coping in the entrepreneurship process. *Frontiers in Psychology*, 11, 398. https://doi.org/10.3389/fpsyg.2020.00398
- Tonoyan, V., Strohmeyer, R., & Jennings, J. E. (2020). Gender gaps in perceived start-up ease: Implications of sex-based labor market segregation for entrepreneurship across 22 European countries. *Administrative Science Quarterly*, 65(1), 181–225. https://doi.org/10.1177/0001839219835867
- Treffers, T., Klyver, K., Nielsen, M. S., & Uy, M. A. (2019). Feel the commitment: From situational emotional information to venture goal commitment. *International Small Business Journal*, *37*(3), 215–240. https://doi.org/10.1177/0266242618813420
- Tucker, M. L., Sojka, J. Z., Barone, F. J., & McCarthy, A. M. (2000). Training tomorrow's leaders: Enhancing the emotional intelligence of business graduates. *Journal of Education for Business*, 75(6), 331–337. https://doi.org/10.1080/08832320009599036
- Uy, M. A., Jacob, G. H., Gielnik, M. M., Frese, M., Antonio, T., & Wonohadidjojo, D. M. (2021). When passions collide: Passion convergence in entrepreneurial teams. Journal of Applied Psychology, 106(6), 902-920. https://doi.org/10.1037/apl0000812
- Weger, U. W., Hooper, N., Meier, B. P., & Hopthrow, T. (2012). Mindful maths: Reducing the impact of stereotype threat through a mindfulness exercise. *Consciousness and Cognition*, 21(1), 471–475. https://doi.org/10.1016/j.concog.2011.10.011
- Welpe, I. M., Spörrle, M., Grichnik, D., Michl, T., & Audretsch, D. B. (2012). Emotions and opportunities: The interplay of opportunity evaluation, fear, joy, and anger as antecedent of entrepreneurial exploitation. *Entrepreneurship Theory and Practice*, *36*(1), 69–96. https://doi.org/10.1111/j.1540-6520.2011.00481.x
- Wood, M. S., & McKelvie, A. (2015). Opportunity evaluation as future focused cognition: Identifying conceptual themes and empirical trends. *International Journal of Management Reviews*, 17(2), 256-277. https://doi.org/10.1111/ijmr.12053

- World Economic Forum. (2020). *The global gender gap report 2020*. https://www3.weforum.org/docs/WEF_GGGR_2020.pdf
- Yang, H., & Zhang, Z. (2019). The variation trend of gender structure by sector in the past 40 years: Equality or segregation? [Chinese]. *Population & Economics*, 3(4), 122–134.
- Yang, T., & del Carmen Triana, M. (2019). Set up to fail: Explaining when women-led businesses are more likely to fail. *Journal of Management*, 45(3), 926–954. https://doi.org/10.1177/0149206316685856
- Yip, J. A., & Côté, S. (2013). The emotionally intelligent decision maker: Emotion-understanding ability reduces the effect of incidental anxiety on risk taking.
 Psychological Science, 24(1), 48–55. https://doi.org/10.1177/0956797612450031
- Zacharakis, A. L., & Shepherd, D. A. (2001). The nature of information and overconfidence on venture capitalists' decision making. *Journal of Business Venturing*, 16(4), 311–332. https://doi.org/10.1016/S0883-9026(99)00052-X
- Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6), 1265–1272. https://doi.org/10.1037/0021-9010.90.6.1265

Appendix A: Experimental Procedures

Appendix A.1: Experiment Details

	Pretest $(n = 66)$	Experiment 1 $(n = 283)$	Experiment 2 $(n = 126)$	Experiment Robustness test (<i>n</i> = 204)
Manipulation	2 (gender: men vs. women) x 3 (article: control vs. masculine stereotype vs. feminine stereotype) between- subjects design	2 (gender: men vs. women) x 3 (article: control vs. masculine stereotype vs. feminine stereotype) between-subjects design	2 (gender: men vs. women) x 2 (emotion: anxiety vs. neutral) between-subjects design	2 (gender: men vs. women) x 3 (article: control vs. masculine stereotype vs. feminine stereotype) between-subjects design
Instrument	1-page newspaper article (Gupta et al., 2014)	1-page newspaper article (Gupta et al., 2014)	Music clip (Brooks & Schweitzer, 2011)	1-page newspaper article (Gupta et al., 2014)
Place	Organizational behavior class	Marketing class	English audiovisual class (with computer)	Strategic management class
Validation	(a) Translated and context adapted by four bilingual graduate students; (b) Chinese translation after the experiment was later translated back to English to check if it was appropriate	Pretest	Download music clip <i>Air from Handel's Water Music</i> from website https://www.kuwo.cn/ play_detail/17335508; download theme music from the movie "Psycho" from website: https://v.qq.com/ x/page/h0187dp2pek.html; convert music clips to MP3 format	Pretest
Manipulation check	Participants randomly read one of three newspaper articles and then evaluate the masculinity—femininity position of entrepreneurship described in article ranging from 1 (very masculine) to 7 (very feminine) using the scale developed by Bergeron et al. (2006)	Pretest	Participants randomly listen to one of two music clips and then evaluate their emotions (anxiety) using the scale developed by Brooks and Schweitzer (2011)	Pretest
Sequence	Introduce experiment; distribute three different	Introduction; distribute three different articles according to	Load music clips into computer in advance (before class start);	Introduction; distribute three different articles according to

articles according to gender and student number; read 1-page newspaper article (Gupta et al., 2014); evaluate masculinity—femininity position (Bergeron et al., 2006) gender and student number; read 1-page newspaper article (Gupta et al., 2014); imagine they need to start a business (Treffers et al., 2019); distribute questionnaire; evaluate how they feel (Brooks & Schweitzer, 2011); answer questions about stereotype threat (Bergeron et al., 2006); answer questions about emotional intelligence (Judge et al., 2003); provide demographic details

introduce experiment; students listen to music clips by headphones; after 6 min, distribute questionnaire with short case about potential entrepreneurship opportunity adapted from Gupta et al. (2014); participants evaluate business opportunity presented in the scenario by a three-item 5-point Likert scale (Goktan & Gunay, 2011; Gupta et al., 2014); answer questions about their anxiety (Brooks & Schweitzer, 2011) and emotional intelligence (Judge et al., 2003); provide demographic details

gender and student number; read 1-page newspaper article (Gupta et al., 2014); distribute questionnaire with short case about potential entrepreneurship opportunity adapted from Gupta et al. (2014); answer two questions about short case; evaluate the opportunity using Goktan and Gunay's (2011) three-item scale; respond to their feelings of concern using K. Lee et al.'s (2011) two items ("I am worried that I may not do well in this business evaluation" and "I am anxious about poorly evaluating this business idea."; demographic details

Appendix A.2: Study Stimuli and Pretest

Following previous studies (Gupta et al., 2014), we used a one-page newspaper article to manipulate three stereotype threat conditions (English version in Appendix A.3.2). In the masculine-stereotype condition, entrepreneurs are described as aggressive, risk-taking, and autonomous; in the feminine-stereotype condition, they are caring, relationship-making, and humble; finally, the control condition with no prevailing stereotype presents an introduction to entrepreneurship education (control group). The newspaper articles were translated and adapted to be appropriate for the Chinese context (see Chinese version at Appendix A.3.1). These minor adaptations involved, for example, changed the university mentioned in the article to a prestigious Chinese university and the professor mentioned to a well-known Chinese professor.

Following Gupta et al. (2014), we developed six scenarios corresponding to our 2 x 3 experimental design to manipulate stereotype threat. After verifying the face validity of all conditions, we tested our stereotype threat manipulations with 66 participants (postgraduate students; 33 men and 33 women). The manipulation test randomly requested participants to read one of the three newspaper articles and evaluate the masculinity–femininity position ranging from 1 (*very masculine*) to 7 (*very feminine*) using the scale Bergeron et al. (2006) developed. Results confirmed our manipulations' internal validity. Specifically, there were significant differences in entrepreneurship perceptions under the three conditions, (F(35.42) = 155.59; p = .001; d = .797). Our post hoc analysis results indicated that under the masculine condition (M = 2.41), entrepreneurship was seen as more masculine (or less feminine) than under the gender-neutral condition (M = 3.64; t(42) = 4.37; p = .000; d = 1.076). Under the feminine condition (M = 5.14), entrepreneurship was seen as more feminine (or less masculine) than under the gender-neutral condition (M = 3.64; t(42) = -4.38; p = .000; d = -1.078).

Appendix A.3.1: Masculine Stereotype Manipulation Article (Chinese Version)

清华大学程源教授的研究表明:勇于前进!雷军和任正非—创业者展示了中国男性气质。随着"大众创业、万众创新"政策的提出,过去的五年中,人们开始重视创业之路。如何知道自己是否具备了创业的基本条件?成功的创业者都具有一些共同的特点。人们可能没必要同时具备这些特质才进行创业,但是拥有这些特质将会使创业过程更加顺利。

- 1.创业者具有攻击性:创业者是天生的战士,他们具有侵略性。他们会做任何事情来实现自己的目标。某位创业者表示:"我想成为一名成功的企业家,如果我不得不踩在某人的肩膀上获得成功,我已经准备好踩那个人了"。
- 2.创业者是冒险者:创业者在环境不确定和资源限制的情况下开展新企业,他们承担了很大的风险。此外,大多数成功的创业者甚至还在业务之外进行冒险活动。比如,王石喜欢高空滑翔伞,周鸿祎喜欢与凶猛野兽玩耍,张朝阳喜欢登山探险。
- 3.创业者是自主的:创业者不依赖于来自他人的支持,并相信每个人都专注于自己。他们相信自己自己才能掌控命运,其他人不能决定他们该做什么或应该怎么做。很多创业者都表示"我没有任何家人或者朋友的支持,我所有的功劳都应该归功于自己,而不是其他人"。

最近一项由清华大学程源教授的学术研究表明,大多数创业者在很大程度上拥有这三个特征,并且 这些特征有助于创业者取得业务的成功。程源教授表明,这一研究结果并不令人惊讶,因为中国人一直 相信-就创业而言,男性特征是值得称赞的。这一研究结论即将刊登在最新出版的创业期刊上。

Appendix A.3.2: Masculine Stereotype Manipulation Article (English Version)

The latest research of Professor Cheng Yuan of Tsinghua University: Dare to move forward! Lei Jun and Ren Zhengfei! Entrepreneurs demonstrated Chinese masculinity.

With the "mass entrepreneurship and innovation" policy put forward, people have paid more and more attention to entrepreneurship in the past 5 years. How does one know if they have what it takes to start a business? Successful entrepreneurs have some characteristics in common. One does not have to have all these characteristics to be a good candidate for entrepreneurship but possessing these qualities will facilitate the

entrepreneurial process.

- 1. Entrepreneurs are aggressive: Entrepreneurs are born warriors; they are aggressive. They will do anything to achieve their goals. An entrepreneur said, "I want to be a successful entrepreneur. If I must step on someone's shoulders to succeed, I'm ready to step on that person."
- 2. Entrepreneurs are risk-takers: Entrepreneurs start new businesses under circumstances of uncertain environments and resource constraints, and they take great risks. In addition, most successful entrepreneurs tend to engage in risk-taking activities even outside business. For example, Wang Shi likes paragliding at high altitudes, Zhou Hongyi likes to play with ferocious beasts, and Zhang Chaoyang likes mountaineering and expeditions.
- 3. Entrepreneurs are autonomous: Entrepreneurs do not rely on support from others and believe that everybody is looking out for themselves. They believe that they can control their destiny and that others cannot decide what they should do or how they should do it. Many entrepreneurs say, "I don't have any support from family or friends, and all my credit should be attributed to myself, not to others."

A recent academic study by Professor Cheng Yuan of Tsinghua University shows that most entrepreneurs have these three characteristics to a large extent, and these characteristics help entrepreneurs to achieve business success. Professor Cheng Yuan stated that the results of this study are not surprising, because the Chinese always believed that in terms of entrepreneurship, male characteristics are commendable. This research conclusion will soon be published in the latest top entrepreneurial journal.

Notes (not included in the experiment):

- 1. Cheng Yuan is a gender-neutral Chinese name used in all four manipulation articles in the experiment. Tsinghua University is considered one of China's best institutions for higher education.
- 2. Lei Jun and Ren Zhengfei are two well-known male Chinese entrepreneurs. The feminine stereotype article used the names of two well-known female Chinese entrepreneurs: Wei Ya and Zhang Zetian. The phrase, "Dare to move forward," was replaced with "Cautious and warm" in the feminine condition.
- 3. The control group article mentioned a report about entrepreneurial education.

Appendix A.4.1: Short Case for Opportunity Evaluation (Chinese Version)

杨阳是一位成功的管理者,已经在一家跨国公司工作了四年。在此之前,杨阳曾在本地一个中等规模的公司工作了五年。杨阳很喜欢开创公司、承担风险和赚钱,也经常鼓励年轻人去创业。

杨阳现在有一项新业务的想法,并决定咨询他人这是否是一个好主意。一些了解这一行业的潜在客户和员工对这个想法给出了积极的反馈。然而,杨阳没有资源做深入的市场调查去确定创业项目是否可行,现有的公开数据也过于笼统无法使用。但是杨阳认为,根据员工和潜在客户的反馈,这个想法可以赚钱。杨阳非常热衷于创业,即使之前并没有行业经验和创业经验。

杨阳创业想法所属行业中已经有一些跨国公司,但他们尚未开发杨阳所瞄准的细分市场。杨阳判断,只要创业项目成功,跨国公司就会进入这一市场,新创企业可能会无法抵御这一威胁。杨阳无法确定市场在增长还是已经成熟,如果市场已经成熟,跨国公司会将小企业挤出市场。如果市场仍在增长,小企业可以在跨国公司进入后继续存在。然而,只有少数的小企业可以在这一行业中存活下来。

杨阳估计至少需要 50 万元的资金来支持创业项目。由于杨阳只有 10 万元的储蓄,其余资金不得不通过银行或者其它合作伙伴借款获得。

Appendix A.4.2: Short Case for Opportunity Evaluation (English Version)

Yang Yang is a successful manager who has worked in a multinational company for 4 years. Before that, Yang Yang worked in a local medium-sized company for 5 years. Yang Yang likes to start companies, take risks, and make money and often encourages young people to start businesses.

Yang Yang has an idea for a new business and decides to consult others as to whether it is a good idea. Some potential customers and employees who know the industry gave positive feedback on this idea. Yang Yang does not have the resources to conduct in-depth market research to find out whether the entrepreneurial

project is feasible, and the existing public data is too general to be useful. But Yang Yang believes this idea can make money based on feedback from employees and potential customers. Yang Yang is enthusiastic about entrepreneurship, even if there is no work experience in this industry or entrepreneurial experience.

There are already a few multinational companies in the same industry, but they have not yet developed the market segments that Yang Yang is targeting. Yang Yang believes that, as long as the entrepreneurial project is successful, multinational companies will enter this market, and new ventures may not be able to fend off this major threat. Yang Yang cannot be sure whether the market is growing or matured. If the market has reached maturity, it is likely for small businesses to be crowded out from the market. If the market is still growing, small businesses can continue to survive after multinational companies enter the market segment. Yang Yang finds that only a few small businesses are surviving in the industry.

Yang Yang estimates that at least RMB 500,000 is needed to support this entrepreneurial project. Because Yang Yang has only RMB 100,000 in savings, other funding needs to be obtained from banks or other partners.

Notes (not included in the experiment)

- 1. Adapted from Grichnik et al. (2010)
- 2. Yang is a gender-neutral Chinese name.
- 3. This case is written in a way that encourages respondents to "enter into the spirit of the case and identify themselves with the dilemmas that the character faces" (Keh et al., 2002, p. 133).

Appendix B: Study 1

Appendix B.1: Regression Results of Stereotype Threat, Anxiety, and Emotional Intelligence

		Anxiety	
	Model 1	Model 2 (Women)	Model 3 (Men)
Stereotype threat	$0.207^{***}(3.432)$	0.030 (0.330)	0.030 (0.221)
Emotional intelligence	0.015 (0.182)	0.038 (0.311)	-0.068 (-0.471)
Stereotype threat * emotional intelligence	-0.183* (-2.119)	-0.288* (-2.122)	-0.372* (-2.016)
Constant	2.942*** (62.394)	3.193*** (48.183)	2.663*** (33.648)
N	283	139	144
R^2	0.043	0.034	0.033
Adjust R^2	0.032	0.012	0.012
F =	4.144	1.572	1.588

Note. *p < .10; **p < .05; ***p < .01.

Appendix B.2: Results of ANOVA Test of Gender, Stereotype Threat, and Anxiety

	Anxiety				
	III square sum	df	Mean square	F	Sig
Modified model	83.349	5	16.670	47.62	0.000
Gender	11.091	1	11.091	31.68	0.000
Stereotype threat condition	1.249	2	0.625	1.78	0.170
Gender * stereotype threat condition	69.967	2	34.984	99.93	0.000
Error	96.973	277	0.350		
Total	180.322	282	0.639		

Appendix C: Study 2 Regression Results of Anxiety, Opportunity Evaluation, and Emotional Intelligence

		Opportunity evaluation	1
	Model 1	Model 2	Model 3
Anxiety	-0.152 (-1.752)	-0.057 (-0.505)	-0.232 (-1.737)
Emotional intelligence	-0.030 (-0.343)	-0.125 (-0.993)	0.031 (0.245)
Anxiety * emotional intelligence	0.181 (1.244)	0.303 (1.322)	0.124 (0.628)
Constant	2.548*** (51.147)	2.522*** (40.460)	2.574*** (32.282)
N	126	66	60
R^2	0.042	0.068	0.059
Adjust R^2	0.018	0.022	0.009
F –	1.761	1.484	1.179

Note. *p < .10; **p < .05; ***p < .01.