Emotional intelligence and entrepreneurial intentions: an exploratory meta-analysis

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Abstract
Purpose – The topic of entrepreneurial intention, which refers to a person’s degree of interest in creating a new business venture, has received close scrutiny in the entrepreneurship literature. The empirical results regarding the relation between emotional intelligence (EI) and entrepreneurial intention were nevertheless mixed across studies. Based on fit theory and trait activation theory, the purpose of this paper is to explain the fundamental reason for the mixed findings in the extant literature thus far.

Design/methodology/approach – Random-effects meta-analyses, based on 12 studies (along with 12 effect sizes), were performed to not only investigate the overall relation between EI and entrepreneurial intention but also to examine the moderators (i.e. individualism (vs collectivism), masculinity (vs femininity), power distance, long-term orientation (vs short-term orientation), uncertainty avoidance, and indulgence (vs restraint)) that influence this relation.

Findings – The results of this meta-analysis demonstrated that EI is positively related to entrepreneurial intention; the positive relationship between EI and entrepreneurial intention is stronger in long-term-oriented cultures; and the positive relationship between EI and entrepreneurial intention does not significantly differ based on a culture’s level of collectivism, masculinity, power distance, uncertainty avoidance, and indulgence.

Originality/value – This meta-analysis advances the current understanding of the relation between EI and entrepreneurial intention from cross-cultural perspectives.

Keywords Emotional intelligence, Entrepreneurial intention, Cross-culture, Meta-analysis

Paper type Research paper

Introduction

The topic of entrepreneurial intention, which refers to a person’s degree of interest in creating a new business venture, is an area where a vast literature has emerged (e.g. Souitaris et al., 2007; Zhao et al., 2010). This is, perhaps, not surprising as entrepreneurial intention is theorized to be a critical antecedent to a person’s actual entrepreneurial actions related to new venture creation as well as subsequent performance in that venture (Brandstätter, 2011). Extant research has explored entrepreneurial intention from multiple perspectives; findings consistently show that – with relevance to the present work – psychological traits predict entrepreneurial intention (Obschonka et al., 2010).

With regard to how the extant literature explores the effect of traits on entrepreneurial intentions, researchers have taken a diverse array of perspectives ranging in scope from the theory of planned behavior (Krueger and Carsrud, 1993), to a social cognitive
approach (Zhao et al., 2005). The common thread across the literature is that there are certain traits that might help individuals accomplish the key entrepreneurial behaviors of identifying, exploring, and implementing opportunities for value creation (Shane and Venkataraman, 2000).

We follow the above line of thinking, and explore emotional intelligence (EI), a trait that has been shown to influence career choice (Emmerling and Cherniss, 2003). EI has been linked to leadership effectiveness and organizational effectiveness (Cherniss, 2001; Goleman et al., 2002), and recent research has highlighted the role that EI has on entrepreneurship (Ingram et al., 2017).

Ashkanasy and Daus (2005) categorized EI measures into three types: ability EI, self-report EI measures based on the four-branch model of EI, and mixed EI measures. Ability EI measures are based on the concept that EI is a type of intelligence, and thus should be measured by objective right and wrong items the way other intelligences are typically measured. The most widely used ability EI measure is the MSCEIT V2.0, which Mayer et al. (2003, p. 99) described as a “141-item scale designed to measure the following four branches (specific skills) of EI: (1) perceiving emotions, (2) using emotions to facilitate thought, (3) understanding emotions, and (4) managing emotions.” Self-report EI measures in the second category are based on this four-branch theoretical model but use self-reports to measure EI (e.g. the Assessing Emotions Scales, Schutte et al., 1998; the Workgroup Emotional Intelligence Profile, Jordan et al., 2002; and the Wong and Law Emotional Intelligence Scale (WLEIS), Wong and Law, 2002). Mixed EI scales also use self-report measures, but they do not confine themselves to the four-branch theoretical model and they incorporate a wider set of emotion-related skills and competencies (e.g. Bar-On, 2006; Boyatzis et al., 2011, 2012). In addition, a “behavioral approach” that uses peer ratings of EI has emerged and has been found to be useful (Boyatzis, 2016; Boyatzis et al., 2017), but more research on this needs to be done before it can be included in meta-analytical studies.

Although some scholars define EI as a type of intelligence, many scholars in the self-report and mixed EI categories assert that EI is a type of trait. For example, trait EI has been defined as “a constellation of behavioral dispositions and self-perceptions concerning one’s ability to recognize, process, and utilize emotion-laden information” (Petrides et al., 2004, p. 278). These scholars also believe, based on their theoretical models and empirical findings, that trait EI is “a lower-order construct that comprehensively encompasses the emotion-related facets of personality” (Petrides, Pita and Kokkinaki, 2007, p. 287). A good example of a trait EI scale is the Trait Emotional Intelligence Questionnaire (Petrides, 2009a, b).

Although there are three types of EI measures, our paper search did not turn up any studies that examined the EI – entrepreneurial intention relationship using the ability EI measures. So, our study only compares self-report and mixed EI measures.

The growth in the quantity of literature focused on EI has made it one of the most widely researched emotion-related constructs across the literature of both management and psychology (Ashkanasy et al., 2017). EI has been shown to predict a litany of important outcomes including job performance, job satisfaction, health, trait mindfulness, turnover intention, organizational commitment, social relation, psychological well-being, job resources, and leadership (Joseph and Newman, 2010; Martins et al., 2010; Miao et al., 2016, 2017a, 2018a, b, c; O’Boyle et al., 2011; Schutte et al., 2007; Walter et al., 2011).

Overall, EI is an ability, trait, or set of mixed skills and competencies that captures intriguing individual differences. In particular, research has shown that EI is a construct that has a valid factor structure which has demonstrated meaningful incremental validities in predicting outcome variables above and beyond the Big Five personality traits and cognitive ability (Andrei et al., 2016; Boyatzis, 2016; Miao et al., 2017a; O’Boyle et al., 2011; Petrides, Pérez-González and Furnham, 2007; Petrides, Pita and Kokkinaki, 2007;
van der Linden et al., 2017). With regards to EI and entrepreneurial intention, however, what is evident in the literature is that this relation is not consistent, with magnitudes of effect sizes ranging from weak negative all the way to moderate positive. For example, Tiwari et al. (2017) reported an effect size of 0.46 whereas Miao (2015) reported a statistically non-significant effect size of 0.053. Accordingly, the first goal of this meta-analysis is to estimate the overall relationship between EI and entrepreneurial intention.

Second, after our perusal of the studies on the relation between EI and entrepreneurial intentions, we found that the samples for these studies were drawn from different countries. National cultures are known to affect the norms for emotional regulation, emotional expression, and emotional appraisal; thus, national culture may be one important source of external influences that may affect one’s use of EI (Gunkel et al., 2014). Thus, our second goal is to explore what may account for the heterogeneity in effect size distributions by examining cross-cultural moderators.

**Fit theory and the EI – entrepreneurial intention relation**

EI’s popularity in the management and psychology literature is well-established (Mayer et al., 2008; Miao et al., 2017b, c); EI is also now well-entrenched in the entrepreneurship literature given that more emotionally intelligent individuals are presumed to be more effective on the job in myriad ways. In particular, fit theory suggests that when individuals’ characteristics fit a job, they are more likely to be dedicated to it and will be good at performing it (Kristof, 1996; Kristof-Brown et al., 2005). This perspective applies to the domain of entrepreneurship in multiple ways.

First, greater EI is presumed to help entrepreneurs get important resources from financial backers, thus providing them a competitive advantage (Ahmetoglu et al., 2011; Cardon et al., 2012). More specifically, entrepreneurs’ activities related to raising funds to start and grow a new venture, either through traditional ways of equity or debt financing or creative ways such as financial bootstrapping, are critical. Humphrey (2013) concluded that emotionally intelligent individuals are more capable of negotiating with stakeholders and that higher EI enables entrepreneurs to secure needed funding to start and grow their ventures. High EI entrepreneurs are good at negotiations because of their ability to perceive other’s emotions. Research has demonstrated that the capability to perceive others’ emotions – even when they are trying to hide them – helps people do better in buying–selling negotiations (Elfenbein et al., 2007). EI is related to both individual job performance (O’Boyle et al., 2011) and leadership effectiveness (Walter et al., 2011), so it is likely that entrepreneurs high on EI would do a better job preparing for their meetings with funders. And, preparedness behaviors are positively related to the amount of funding received because entrepreneurs’ preparedness behaviors increase financial backers’ perceived legitimacy of a venture (Pollack et al., 2012).

Second, entrepreneurship is fraught with uncertainties, risks, and stresses (Baron and Markman, 2004; Brockhaus, 1980). People with high EI have the ability to effectively monitor and manage emotions and to cope with negative feelings and stresses; this ability reduces burnout when launching and operating a new venture (Brockhaus, 1980; Humphrey, 2013).

Third, being an entrepreneur requires one to recognize opportunities (Shane and Venkataraman, 2000); research shows individuals who generally feel positive are more likely to identify opportunities (Baron, 2008). Here, we suggest that emotionally intelligent individuals “fit” the entrepreneurial career because they can manage their emotions to remain optimistic which allows them to interpret things in positive light, thus resulting in higher chances of opportunity identification. Humphrey (2013) also argued that the ability to read others’ emotions helps would-be entrepreneurs spot new opportunities. High EI entrepreneurs know when customers are excited and enthusiastic about new ideas, products, and market trends. Humphrey (2013, p. 290) states, “people who are keenly aware of how
others think and feel would have an advantage in picking new product ideas that people both want and are willing to buy. At the highest levels of emotional intelligence, entrepreneurs may know what consumers want before consumers do.”

Overall, based on what has been discussed in the literature, emotionally intelligent individuals are well suited to entrepreneurship because the job demands of entrepreneurship are compatible with their psychological characteristics (Zhao and Seibert, 2006). And, consistent with extant research, individuals tend to select jobs in which the demands are aligned with their abilities (Wilk et al., 1995). Thus, we suggest that emotionally intelligent individuals should have higher intentions to become entrepreneurs due to the fit between their personal characteristics and the work demands of entrepreneurial careers. Despite this strong theoretical rationale, we still see ambiguous results emerging across the empirical literature. For instance, Tiwari et al. (2017) reported an effect size of 0.46; Miao (2015) yet reported a statistically non-significant effect size of 0.053. Accordingly, the first goal of the present study is to answer the question: What is the relation between EI and entrepreneurial intention?

**Trait activation theory and cross-cultural moderators**

Trait activation theory suggests that traits may be more predictive of outcome variables when trait-relevant cues function in a given context. This is because these cues may trigger one’s expression of traits and, hence, stimulate one to perform in a way that is compatible with contextual cues, therefore enhancing the relation between traits and their outcome variables (Miao et al., 2016; Tett and Guterman, 2000). One strong context in which this may be the case is national cultures. Specifically, national cultures hold emotion-based cues because they are known to shape norms, beliefs, and values that influence one’s emotional appraisal, expression, and management (Emmerling and Boyatzis, 2012; Miao et al., 2016; Taras et al., 2010).

Our investigation uses the popular Hofstede cultural values dimensions to code national cultures (Hofstede, 2001, 2011; Hofstede et al., 2010). This includes the following dimensions: power distance (low-high), uncertainty avoidance (low-high), individualism/collectivism, masculinity/femininity, long/short-term orientation, and indulgence/restraint (for definitions of these dimensions, see Hofstede, 2011). Power distance refers to the degree to which societies tolerate unequal distributions of power, and the degree to which subordinates are expected to show deference to their superiors. Uncertainty avoidance refers to tolerance for ambiguity and unstructured situations. Hofstede (2011, p. 11) defines individualism/collectivism, as “the degree to which people in a society are integrated into groups.” With regard to masculinity/femininity, Hofstede (2011, p. 12) states, “men’s values from one country to another contain a dimension from very assertive and competitive and maximally different from women’s values on the one side, to modest and caring and similar to women’s values on the other.” In short-term cultures attention is on the current and near-term future, whereas in long-term cultures people plan and invest for the future. Hofstede et al. (2010) expanded Hofstede’s (2001) original model by adding indulgence/restraint. Hofstede (2011, p. 15) explains this new dimension by stating, “Indulgence stands for a society that allows relatively free gratification of basic and natural human desires related to enjoying life and having fun. Restraint stands for a society that controls gratification of needs and regulates it by means of strict social norms.”

Drawing on this line of thinking, we suggest that one potential moderator – and, a possible explanation of the discrepant results in the literature – is national culture. Prior studies suggested that EI is conditioned by cultural norms and values, and norms for emotional expression, emotional regulation, use of emotion, and emotional appraisal differ across cultures; hence, national cultures serve as external influencers and foster the development of
social environments that affect one’s utilization of EI (Gunkel et al., 2014; Lin et al., 2012). Although emotions are biologically programmed, the use of emotion is affected, shaped, and maintained by national cultures (Gunkel et al., 2014; Matsumoto, 1989). Due to these reasons along with trait activation theory, we argue that EI is likely to be activated in cultures in which the social contexts are conducive to the use of EI. For example, Gunkel et al. (2014) argued that control of emotion is encouraged in high power distance cultures; high uncertainty avoidance cultures promote release of emotions (less emotional regulation); collectivistic cultures encourage suppression of emotions; and feminine cultures promote control of emotions.

Other studies have also found that cultural differences influence emotions in work settings. Taras et al.’s (2010) meta-analysis on Hofstede’s (2001, 2010) cultural value dimensions included 598 studies with over 200,000 respondents. Their meta-analysis provided strong evidence that cultural dimensions influence a wide variety of emotion-related variables. For example, variables such as a “tendency to display emotions,” “openness in communication,” and “sensitivity to others” varied significantly by cultural dimensions. The amounts of depression, anxiety, and “embarrassability” also varied by cultural dimensions. Work-related behaviors were also influenced, including “effort,” “cooperation with colleagues,” and most importantly for this study, the levels of “innovation” and “entrepreneurial behavior.” Another study, by Reus (2012), concluded that cultural values determined the degree of “emotional attending” during mergers and acquisitions. Reus (2012, p. 342) defined emotional attending as the “striving to make acquired organization members feel good” and stated that it “instills a climate of recognizing and sharing emotions.”

Another meta-analysis found that the influence of leader’s EI on subordinates’ task performance and organizational citizenship behaviors also varied by cultural dimensions (Miao et al., 2018a). This is relevant to our study because, as Humphrey (2013) stated, entrepreneurs are the ultimate leaders. Miao et al. (2018a) found that the effects of leader EI on subordinate task performance were stronger in collectivistic, feminine, and high uncertainty avoidance cultures. With regard to organizational citizenship behavior, the effects were stronger in high power distance, collectivistic, feminine, high uncertainty avoidance, long-term oriented, and restraint cultures. Despite the cultural differences in the size of the leader EI influence, the researchers also found (p. 471) that, “Although the effects of leader EI may be more important in some cultures than in others, the effects of leader EI are still statistically significant in every culture.” Their results suggest that although the effects of EI on entrepreneurial intentions might be stronger in some cultures than others, that the effects of EI on entrepreneurial intentions might still be positive in every culture.

Based on theories and some preliminary empirical evidence, we explore this avenue in order to respond to the call from prior research to investigate the cross-cultural implications of EI (Di Fabio et al., 2016; Emmerling and Boyatzis, 2012; Walter et al., 2011). Entrepreneurs share many of the same characteristics of leaders, particularly in terms of taking initiative, developing a vision, and leading their followers. Thus, it is possible that the cross-cultural moderation effects for the EI→entrepreneurial intentions relationship might be the same as for the leader EI→subordinate task performance and organizational citizenship behavior relationship. Based on the Miao et al. (2018a) results, we have developed the following three hypotheses:

\[ H1. \] EI will be positively related to entrepreneurial intentions.

\[ H2. \] The relationship between EI and entrepreneurial intentions will be stronger in high power distance, collectivistic, feminine, high uncertainty avoidance, long-term oriented, and restraint cultures.

\[ H3. \] Although culture may moderate the effects of EI, EI will still be positively related to entrepreneurial intentions in every culture.
Method

Article search and inclusion

We searched a plethora of academic databases for relevant literature (e.g. EBSCO Host, ProQuest Dissertations and Theses, PsycNET and Social Sciences Citation Index). We employed a set of keywords as well as several variations of them for the search, including EI, emotional competency, entrepreneurial intention(s), entrepreneurial intent, intent to start, and intention(s) to start[1]. We searched relevant entrepreneurship, management, and psychology journals. We searched Google websites (both Google and Google Scholar) and also searched relevant conferences related to entrepreneurship, management, and psychology in order to identify unpublished papers.

We had two main inclusion criteria that enabled us to reduce the number of articles that were possibilities for inclusion[2]: included studies had to be empirical and quantitative; and included studies had to report a correlation coefficient between EI and entrepreneurial intention, or report sufficient statistics that allow for an effect size conversion via Lipsey and Wilson’s (2001) and Peterson and Brown’s (2005) methods. In total, we identified 12 eligible studies to include in this meta-analysis ($n=3,578$)[3]. The description of each included study was shown in Table I. The references for the included studies were marked with * in the References section.

Coding and meta-analytic procedures

We coded two things. First, in line with prior meta-analyses (e.g. Miao et al., 2017a; O'Boyle et al., 2011), we noted three typesstreams of EI: ability EI, self-report EI, and mixed EI. We used these three existing classifications to categorize studies according to typesstreams of EI (for a review, see Miao et al., 2017a)[4]. Second, we followed Hofstede’s cultural dimensions to code national cultural dimensions of identified studies (Hofstede, 2001; Hofstede et al., 2010). Six cultural dimensions were coded for each country, which are

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Publication status</th>
<th>Sample size</th>
<th>Country</th>
<th>Occupation</th>
<th>EI measure</th>
<th>Entrepreneurial intention measure</th>
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<tr>
<td>Davis and Peake</td>
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<td>Students</td>
<td>WLEIS</td>
<td>Others – Others</td>
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<td>Students</td>
<td>WLEIS</td>
<td>Others – Others</td>
</tr>
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<td>Spain</td>
<td>Students</td>
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<td>Others</td>
</tr>
<tr>
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<td>Unpublished</td>
<td>300</td>
<td>Iran</td>
<td>Students</td>
<td>WLEIS</td>
<td>Others</td>
</tr>
<tr>
<td>Hassan and Omar</td>
<td>2016</td>
<td>Published</td>
<td>213</td>
<td>Malaysia</td>
<td>Students</td>
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</tr>
<tr>
<td>Javed et al.</td>
<td>2016</td>
<td>Published</td>
<td>192</td>
<td>Pakistan</td>
<td>Students</td>
<td>SSEIT</td>
<td>Others</td>
</tr>
<tr>
<td>Jiang and Park</td>
<td>2012</td>
<td>Published</td>
<td>579</td>
<td>China and Korea</td>
<td>Students</td>
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<td>Unpublished</td>
<td>321</td>
<td>USA</td>
<td>Students</td>
<td>WLEIS</td>
<td>Others – Others</td>
</tr>
<tr>
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<td>2014</td>
<td>Published</td>
<td>394</td>
<td>Spain and Portugal</td>
<td>Students</td>
<td>SSEIT</td>
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<td>TEI</td>
<td>Krueger et al. (2000)</td>
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</table>

Notes: WLEIS, Wong and Law Emotional Intelligence Scale; SSEIT, Schutte Self-Report Emotional Intelligence Test; TEI, Trait Emotional Intelligence

Table I. Studies included in the meta-analysis
individualism (vs collectivism), masculinity (vs femininity), power distance, long-term orientation (vs short-term orientation), uncertainty avoidance, and indulgence (vs restraint).

With regards to our analyses, we performed meta-analyses according to Schmidt and Hunter (2015). Meta-analysis formulas were programmed into an Excel spreadsheet, which was used to meta-analyze the data. We corrected for measurement errors in both independent and dependent variables for each effect size. We calculated corrected 95% confidence intervals to assess the statistical significance of effect sizes. An effect size is considered to be statistically significant at $\alpha = 0.05$ level as long as the 95% confidence interval of an effect size does not contain zero. We computed both $\text{Var}_{\text{art}}\%$ statistic and the corrected 80 percent credibility interval to evaluate the potential existence of moderators. Moderators may influence meta-analytic distributions if statistical artifacts explain less than 75 percent of the variance in the meta-analytic effect sizes (i.e. when $\text{Var}_{\text{art}}\%$ is less than 75 percent). In addition, a wide 80 percent credibility interval also suggests the potential existence of moderators in meta-analytic distributions. We conducted $z$-tests (Hunter and Schmidt, 1990) to analyze moderator effects in accordance with prior research (e.g. Garrett et al., 2017; Miao, Coombs, Qian and Sirmon, 2017).

Publication bias analyses
We performed both trim-and-fill analysis and Begg and Mazumdar’s (1994) rank correlation test to evaluate the impact of publication bias on our meta-analytic results. With regards to trim-and-fill analysis, we considered the potential for bias on both sides of the funnel plot because we are uncertain about how publication bias operates in our meta-analytic results. We used the criteria recommended by Kepes et al. (2012) to determine the degree of publication bias. Under the trim-and-fill analysis, we considered the degree of publication bias as absent or negligible when the difference between observed mean correlation and adjusted observed mean correlation was less than 20 percent. We considered the difference of between 20 and 40 percent as moderate publication bias and the difference of 40 percent or more as serious publication bias. Begg and Mazumdar’s (1994) rank correlation test suggests the absence of publication bias if rank order correlation is shown to be statistically non-significant.

For the main meta-analytic distribution of the EI – entrepreneurial intention relation, we found that only one sample was imputed on the left side of funnel plot (see Figure 1). The difference between observed mean correlation and adjusted observed mean correlation was only 0.02, which refers to a difference less than 20 percent. Thus, the trim-and-fill analysis suggested that publication bias was absent or negligible. Begg and Mazumdar’s (1994) rank correlation test yielded a rank correlation of 0.35; this rank correlation was statistically non-significant, demonstrating that publication bias is unlikely[5]. In sum, two sets of publication bias analyses converged and showed that the impact of publication bias on our meta-analytic results is negligible at best and our results are robust.

Results
Table II displays the results of the relation between EI and entrepreneurial intention. We found that EI is significantly and positively related to entrepreneurial intention ($\hat{\rho} = 0.24$) because the 95% confidence interval of this effect size ranged from 0.13 to 0.35 which excluded zero. Therefore, $H1$ is supported. We also found that self-report EI is significantly and positively related to entrepreneurial intention (self-report EI: $\hat{\rho} = 0.28$). Although the mixed EI effect size was $\hat{\rho} = 0.17$, its confidence interval included zero and is thus not significant.

The $\text{Var}_{\text{art}}\%$ value of the meta-analytic distribution of EI – entrepreneurial intention relation was only 12 percent, which is far less than 75 percent; therefore, searching for moderators was justified. We performed $z$-tests to examine moderator effects (i.e. between-group difference in effect sizes), the results of which are shown in the last column of Table II.
For instance, with regards to the first cultural moderator (i.e. individualism vs collectivism), we found that the relationship between EI and entrepreneurial intention does not significantly differ between individualistic and collectivistic cultures. We repeated the same type of analyses to test all cultural moderators. We found that the positive relationship between EI and entrepreneurial intention was stronger in long-term-oriented cultures than in short-term-oriented cultures. The positive relationship between EI and entrepreneurial intention did not differ based on a culture’s individualism/collectivism, masculinity/femininity, power distance, uncertainty avoidance, and indulgence/restraint. Thus, \( H2 \) was only supported for one cultural dimension.

For 9 out of the 12 cultures, the EI → entrepreneurial intentions relationship was positive and statistically significant. For the other three dimensions, the EI to intentions relationships just missed being significant, and the confidence intervals included zero by small amounts (−0.01; −0.04; and −0.05). Thus, \( H3 \) is supported for only 9 of the 12 cultures.

**Discussion**

**Theoretical implications**

We meta-analytically explored the relation between EI and entrepreneurial intention. Additionally, based on calls from prior research (e.g. Emmerling and Boyatzis, 2012; Gunkel *et al.*, 2016; Walter *et al.*, 2011), we examined how cross-cultural factors moderate this relationship. We discovered that the relation between EI and entrepreneurial intention is significant and positive. The magnitude of this relation (\( \hat{\rho} = 0.24 \)) is above the 50th percentile for individual difference variables (0.19) and below the 75th percentile (0.29) according to a meta-analysis of effects sizes (Gignac and Szodorai, 2016), and thus qualifies as an above average effect size (see Bosco *et al.*, 2015, for more on effect size benchmarks).

We found that the relationship between EI and entrepreneurial intention is stronger in long-term-oriented cultures relative to short-term-oriented cultures. Successful entrepreneurship takes a considerable amount of time – it is a long and challenging journey for a new business to reach a legitimacy threshold and grow into a venture with positive profits and healthy cash flow (Rutherford and Buller, 2007). As such, EI is likely to be activated in long-term-oriented cultures and has a more noticeable effect on
entrepreneurial intention in long-term-oriented cultures because individuals from these cultures are interested in investing in the future, preparing for the future, and persevering to achieve positive results rather than demanding immediate gratification.

Note, however, that the EI → entrepreneurial intentions relationship is still positive and statistically significant in short-term-oriented cultures, so EI is important to entrepreneurial intentions in these cultures too, although not as much as in long-term-oriented cultures. This positive relation between EI and entrepreneurial intention did not significantly and systematically vary between individualistic and collectivistic cultures, masculine and feminine cultures, high and low power distance cultures, high and low uncertainty avoidance cultures, and indulgent and restrained cultures. Because of the small number of studies and samples for each culture, more research needs to be done to verify these results. In general, however, our results accord well with Miao et al.’s (2018a) findings that EI has positive effects in all cultures.

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| EI – entrepreneurial intention | k | n | r | SD_r | \( \hat{p} \) | SD_\( \hat{p} \) | CI LL | CI UL | CV LL | CV UL | Var_{art} % | Sig. diff. |
|-------------------------------|---|---|---|------|------|------|------|------|------|------|------|-----------|-----------|
| EI type                        |   |   |   |      |      |      |      |      |      |      |      |           |           |
| a. Self-report EI             | 8 | 2,266 | 0.24 | 0.13 | 0.28 | 0.13 | 0.18 | 0.37 | 0.11 | 0.44 | 19       |           |
| b. Mixed EI                   | 4 | 1,312 | 0.13 | 0.20 | 0.17 | 0.24 | -0.07 | 0.41 | -0.14 | 0.47 | 8        |           |
| IDV                           |   |   |   |      |      |      |      |      |      |      |      |           |           |
| a. Individualism              | 4 | 1,481 | 0.11 | 0.18 | 0.14 | 0.19 | -0.05 | 0.33 | -0.10 | 0.38 | 9        | -         |
| b. Collectivism               | 6 | 1,473 | 0.27 | 0.11 | 0.32 | 0.10 | 0.23 | 0.41 | 0.20 | 0.45 | 34       | -         |
| MAS                           |   |   |   |      |      |      |      |      |      |      |      |           |           |
| a. Masculinity                | 4 | 960  | 0.30 | 0.18 | 0.33 | 0.19 | 0.13 | 0.52 | 0.08 | 0.57 | 11       | -         |
| b. Femininity                 | 4 | 1,563 | 0.09 | 0.13 | 0.11 | 0.15 | -0.04 | 0.27 | -0.08 | 0.30 | 15       | -         |
| PDI                           |   |   |   |      |      |      |      |      |      |      |      |           |           |
| a. High power distance        | 8 | 2,656 | 0.17 | 0.16 | 0.21 | 0.17 | 0.08 | 0.33 | -0.01 | 0.43 | 13       | -         |
| b. Low power distance         | 3 | 730  | 0.24 | 0.17 | 0.27 | 0.17 | 0.06 | 0.47 | 0.05 | 0.49 | 13       | -         |
| LTO                           |   |   |   |      |      |      |      |      |      |      |      |           |           |
| a. Long-term orientation      | 2 | 809  | 0.30 | 0.10 | 0.34 | 0.11 | 0.17 | 0.50 | 0.19 | 0.48 | 17       | b         |
| b. Short-term orientation     | 8 | 2,459 | 0.13 | 0.15 | 0.17 | 0.16 | 0.05 | 0.28 | -0.04 | 0.37 | 15       | a         |
| UAI                           |   |   |   |      |      |      |      |      |      |      |      |           |           |
| a. High uncertainty avoidance | 5 | 1,755 | 0.13 | 0.16 | 0.17 | 0.19 | -0.01 | 0.34 | -0.08 | 0.41 | 10       | -         |
| b. Low uncertainty avoidance  | 6 | 1,244 | 0.27 | 0.17 | 0.32 | 0.18 | 0.17 | 0.47 | 0.09 | 0.55 | 15       | -         |
| IND                           |   |   |   |      |      |      |      |      |      |      |      |           |           |
| a. Indulgence                 | 5 | 1,014 | 0.23 | 0.17 | 0.27 | 0.16 | 0.12 | 0.43 | 0.06 | 0.48 | 18       | -         |
| b. Restraint                  | 6 | 2,446 | 0.17 | 0.21 | 0.21 | 0.18 | 0.06 | 0.36 | -0.02 | 0.44 | 9        | -         |

Notes: EI, emotional intelligence; k, number of independent samples; n, sample size; r, uncorrected sample-size-weighted mean correlation; SD_r, sample-size-weighted standard deviation of observed mean correlations; \( \hat{p} \), corrected sample-size-weighted mean correlation; SD_\( \hat{p} \), sample-size-weighted standard deviation of corrected mean correlations; CI LL and CI UL, lower and upper bounds of corrected 95% confidence interval; CV LL and CV UL, lower and upper bounds of corrected 80 percent credibility interval; Var_{art} %, percent of variance in \( \hat{p} \) explained by statistical artifacts; Sig. diff., significant difference. Letters in this column match with the letters in rows and demonstrate that effect sizes are significantly different from one another at 0.05 level. The sign “–” shows between-group effect size difference is statistically non-significant.

Table II. Meta-analysis results for EI – entrepreneurial intention relationship
Our empirical assessment of the relation between EI and entrepreneurial intentions, integrating a cultural dimension perspective – rooted in trait activation theory – provides a needed re-specification to the literature (Miao et al., 2016; Tett and Guterman, 2000). This nuanced approach revealed undiscovered and unanticipated (with respect to specific cultural dimensions) findings. Here, we anticipate that our work will facilitate a more evidence-based approach to future research, given that we have clarified the empirical landscape. In particular, now that we know that the effect size is positive and significant, but conditional on long-term/short-term orientation, this benchmark and boundary condition can set the stage for multiple lines of future research. Overall, we have answered the calls for clarity within the literature with regards to the EI-intention relation, as well as an assessment for the role that culture plays in affecting the EI-intention relation.

Practical implications
With regards to practical implications, we note the following insights. From a policy making point of view, our results provide evidence consistent with the inference that EI is a predictor of entrepreneurial intentions. This information may be of use to career counselors, who might find it useful to know that their high EI students/clients might be interested in a career as an entrepreneur. And, given that greater EI may enable individuals to perform better in the role of entrepreneur (Ingram et al., 2017), it seems plausible that policy makers should include more content related to self-assessments of EI at events and conferences dedicated to increasing rates of startups.

For example, if there were a larger number of sessions of programming related to EI at introductory startup weekends, meetups, and/or career assessment gatherings it might be a way for a greater number of individuals to identify an aptitude toward higher EI. Those individuals, in turn, may self-select into entrepreneurial roles as opportunities arise. Additionally, individuals may self-select out of such opportunities, which could lead to decreased failure rates of new ventures (Markman and Baron, 2003). Either way, our findings support the notion that awareness of EI may help individuals make decisions with regards to career choices. Related, and building on this line of thinking, from the perspective of an individual entrepreneur their awareness of EI may enable a better choice within the domain of entrepreneurship with regards to what their role actually is (e.g. some roles may be better suited toward individuals with greater or lesser EI).

Furthermore, and again with relevance to policy making, our findings from the extant literature show that the relation between EI and entrepreneurial intentions is mostly robust to culture (except for the long-term/short-term orientation dimension). There has been growing interest from academics and practitioners alike (Yucel and Habiyakare, 2011) about how culture affects entrepreneurship. Although exploratory, our findings could be used as evidence to suggest that culture is perhaps less of an influence on entrepreneurial intentions than currently surmised. Accordingly, this could simplify efforts such as the introductory startup weekends, meetups, and/or career assessment gatherings noted above – put in other words, EI may be a valuable way to bring communities together. Culture is still a key component of an individuals’ identity. But, it may be that with regards to EI and entrepreneurship, cultures may share more in common than previously thought.

Limitations and future directions
We note the following limitations and associated future directions for research. First, there is no general agreement with respect to the number of samples that would make a meta-analysis worthwhile; however, researchers begin to use a minimum of three samples for a meta-analysis (Miao, Rutherford and Pollack, 2017). This rule works fine for our bivariate meta-analysis; yet, when it comes to moderator analyses, more samples are always better.
because a meta-analytic moderator analysis is a low power test (Steel and Kammeyer-Mueller, 2002). Analogously, Borenstein et al. (2009) cautioned that one might not use non-significant findings to conclude the absence of moderator effects because failure to identify the statistical significance of moderator effects might be caused by low power. Hence, we encourage readers to exercise caution when interpreting the results of our moderator analyses in that the meta-analytic distributions across moderator subgroups are not very large and are susceptible to second-order sampling error. We believe that our preliminary meta-analysis is still useful in advancing the literature regarding the EI – entrepreneurial intention relation because it provided a timely interim evaluation of current literature and highlighted the areas where more research should be done (Garrett et al., 2017).

Second, our meta-analysis is dominated by studies using cross-sectional designs; thereby, we cannot rule out the possibilities of reverse causality or reciprocal causation. We encourage future research to use longitudinal designs so that strong causal inferences can be drawn.

Third, the entrepreneurial process is multilevel (Shepherd and Patzelt, 2017); nevertheless, most of the research concerning EI under the context of entrepreneurship has been conducted at single level of analysis and is dominated by individual-level studies. Future research should link EI to higher level variables, such as entrepreneurial orientation (Miao, Coombs, Qian and Sirmon, 2017), and/or investigate how EI influences some within-individual variations in decision making (Shepherd and Patzelt, 2017).

Fourth, the meta-analysis is based on studies that use self-ratings of EI. Self-ratings are prone to self-enhancement and social desirability effects, so this poses a limitation to this study. Future studies should consider using 360-degree designs that include others’ ratings of the target’s EI. EI researchers have begun using behavioral ratings of peoples’ EI (Boyatzis, 2016; Boyatzis et al., 2017), and these studies may help provide additional evidence as to the influence of EI on various outcomes.

Notes
1. We did not use culture or cultural dimensions as our keywords for search because we tried to be less restrictive in using keywords for search in order to maximize the number of relevant hits in the search. We followed the principle of “ambiguous query” in searching for relevant articles because that approach would yield maximum amount of pertinent hits. Even if we did not use the keywords such as culture and/or cultural dimensions, our search still returned both cross-cultural and non-cross-cultural articles, thus confirming the comprehensiveness of our search. To further verify the thoroughness of our approach, we also performed the search by including culture and/or cultural dimensions as keywords. We did not find any additional studies after the inclusion of these keywords.

2. We did not specify culture as an inclusion criterion. Although cross-cultural moderators were parts of the key contributions of our study, the primary focus of our study was on the relationship between EI and entrepreneurial intention. Hence, as long as a study reported a correlation coefficient between EI and entrepreneurial intention or report sufficient statistics that allow for an effect size conversion, we would include that study. If a study only reported a correlation coefficient between EI and entrepreneurial intention or provided sufficient statistics that allow for an effect size conversion but failed to report the country where the sample was drawn, then this study could only be included in the main distribution of EI – entrepreneurial intention; yet, this study could not be included in the distributions of cross-cultural moderators due to the missing country information. Fortunately, all included studies not only provided correlation coefficients or sufficient statistics for EI – entrepreneurial intention relation but also reported the country where the sample was drawn.

3. We used the English language to search for relevant articles. Our search still identified some articles written in foreign languages which had abstracts and titles written in English. Among the 12 included studies, there is one article written in foreign language (i.e. Timuroğlu and Akpunar, 2017).
The coders coded this study with the help of a translator. Since the English language was used in the search, the articles from non-western cultures that were written in non-English languages would be less likely to be included; hence, this could be a limitation for the present study.

4. Our search did not identify any studies using ability EI measure; hence, our meta-analytic results did not cover the studies using ability EI measure.

5. Begg and Mazumdar’s (1994) rank correlation test is based on significance testing; thus, the statistical significance of result from this test is influenced by the number of samples (Kepes et al., 2012). We encourage readers to interpret the result from this test with caution as the non-significant result may be caused by the limited number of samples in our study.

References
References marked with an asterisk (*) were included in the meta-analysis.


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