



Optimizing Personality Traits and Entrepreneurial Creativity to Boost the Precursors of Social Entrepreneurial Intentions: Five Studies in Taiwan

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ABSTRACT

This study tested the model proposed by Hockerts, who revised the framework proposed by Mair and Noboa by retaining empathy, self-efficacy, and perceived social support and by adding moral obligation and prior experience of social problems as precursors of social entrepreneurial intentions. This model was further perfected by including personality traits as precursors and entrepreneurial creativity as a mediator. A total of 1,930 participants were included in the five subsequent survey studies. The results revealed that personality traits and prior experience predicted social entrepreneurial intentions through the mediation of entrepreneurial creativity and the four precursors identified earlier. This mediating model responded differently across academic fields, socioeconomic contexts, and work experiences mainly because of prior experience, empathy, and usefulness. Future research could investigate how the alternative model including personality traits, social responsibility, and the nature of different social problems is associated with social entrepreneurial intentions.

KEYWORDS

Entrepreneurial creativity; personality traits; precursors; social entrepreneurial intention

Introduction

The social entrepreneurship (SE) movement is gaining momentum worldwide, and business school leaders have identified SE as one of the most in-demand areas of business research (Short, Moss, & Lumpkin, 2009). SE aims to resolve social problems by the action of social entrepreneurs who work to establish liaisons between social causes and entrepreneurial actions in organizations. SE practices are typically discussed focusing on several themes (Shaw & de Bruin, 2013; Thompson, Alvy, & Lees, 2000): satisfying the unmet needs of the welfare systems, exploring the possibilities of social innovation, establishing various resources for SE development, and identifying entrepreneur behaviors in different stages. The concept of SE is well known in Europe and the United States; however, it is an evolving profession in Asia.

Intention models are useful for understanding the motivation behind entrepreneurship because they explain why entrepreneurs make plans to

establish a business before exploring alternate opportunities (Krueger, Reilly, & Carsrud, 2000). In the past few years, scholars have initiated research on the theoretical development to identify the intentions to form a social enterprise (Hockerts, 2017; Mair & Noboa, 2006). These studies were based on the sound theoretical foundation of Ajzen's (1991) theory of planned behavior (TPB); but they failed to consider the critical traits such as personality and creativity. However, previous trials have repeatedly proven the effect of these inherent characteristics on entrepreneurial intentions (Smith, Bell, & Watts, 2014; Zampetakis, 2008; Zhao, Seibert, & Lumpkin, 2010). Moreover, intention formation is expected to vary according to the differences in the socioeconomic status (Liñán & Chen, 2009), academic fields, and professional experiences (Hockerts, 2017; Liu, Chang, Liang, Ip, & Liang, 2019; Pen & Liang, 2019). Nevertheless, few studies have conducted relevant comparison researches to date.

The objective for conducting the five subsequent studies was to update the theoretical foundation to fill the gap in the research in this area. The first study proposed a revised model of social entrepreneurial intentions (SEIs), which extended the models proposed by Mair and Noboa (2006) and Hockerts (2017) as well as examined the factor structure of the scales used in this study using confirmatory factor analysis (CFA). The second study tested the proposed model in Taiwanese university students with different majors to validate the newly proposed research framework. The third study included agricultural college students in Taiwan to compare the model responses of different academic majors. The fourth study recruited university students in Hong Kong to test the model and compare the model responses between two distinct socioeconomic contexts. Finally, the fifth study tested the model on Taiwanese media professionals and compared the model responses of individuals of distinct age groups with dissimilar life and work experiences.

Theoretical underpinning

Research in intention formation is often considered as an initial effort toward a broad understanding about entrepreneurship. Entrepreneurial intention refers to an individual's self-acknowledged conviction of setting up a new business and intentionally preparing for it in the future (Thompson, 2009). Pittaway and Cope (2007) emphasized the importance of developing and implementing diverse approaches for studying entrepreneurial intention. They indicated that additional studies on entrepreneurial intention must be linked with employability in small and medium enterprises or nonprofit organizations to provide a justification beyond the fulfillment of economic needs. Based on the studies of Liñán and Chen (2009) and Lans, Gulikers, and Batterink (2010), Wang, Chang, Yao, and Liang (2016) developed a valid scale for examining entrepreneurial intention that incorporated the dimensions of conviction and preparation and can be used for studying SEI (Ip, Liang, Wu, Law, & Liu, 2018; Liu et al., 2019).

Mair and Noboa (2006) adopted Ajzen's (1991) TPB and proposed empathy (to substitute

attitudes toward behavior), moral judgement (to substitute social norms), self-efficacy (to substitute internal behavioral control), and perceived social support (to substitute external behavioral control) as precursors of social entrepreneurial intention. Their model has been discussed theoretically and verified empirically by several studies (Hockerts, 2017; Moorthy & Annamalah, 2014; Tukamushaba, Orobia, & George, 2011).

Empathy refers to the ability to intellectually recognize and emotionally experience the feelings of others (Mair & Noboa, 2006). Therefore, empathy has been extensively studied in the context of helping behavior and identified as an essential motivator of SEI (Dees, 2012; Miller, Grimes, McMullen, & Vogus, 2012; Worsham, 2012). In addition, moral judgement refers to the cognitive process that stimulates an individual to help others for a common good (Mair & Noboa, 2006). Numerous studies have recognized adherence to moral standards as the personal charisma of social entrepreneurs (Bacq, Hartog, & Hoogendoorn, 2016; Nga & Shamuganathan, 2010). Hockerts (2017) subsequently suggested replacing moral judgement with moral obligation because it is a concept that falls between the act of moral judgement and the formation of moral intent.

Self-efficacy refers to a psychological state in which an individual possesses the self-confidence to accomplish a task (Bandura, 2000). High levels of self-efficacy lead an individual to perceive that the creation of a social enterprise is a viable action and can facilitate the formation of the corresponding intention (Lans et al., 2010; Tran & Von Korflesch, 2016; Wang et al., 2016). Finally, perceived social support refers to the trust and cooperation derived from personal social networks (Backman & Smith, 2000). It is perceived as resource provision that empowers the SEI feasibility for achieving social innovation (Estrin, Mickiewicz, & Stephan, 2013).

Recently, Hockerts (2017) extended Mair and Noboa's model (2006) by substituting moral judgement with moral obligation because moral obligation is a belief situated between the act of moral judgement and the formation of moral intent. Hockerts also proposed the addition of prior experience with social problems as a

precursor. Prior experience is considered because familiarity with relevant problems and organizations can serve as a trigger for intention formation; this is supported by relevant research (Kautonen, Luoto, & Tornikoski, 2010). Hockerts proposed that the links between prior experience and SEI are mediated by empathy, moral obligation, self-efficacy, and perceived social support, and successfully verified this mediating model using three independent samples. This newly developed model is promising because it accounts for cultural differences. However, it has not been fully tested in Asia.

Moreover, recent meta-analytic studies have reported strong associations between personality traits and entrepreneurial intention (Brandstätter, 2011; Zhao et al., 2010). Further, numerous researchers have reported that people with SEI score high on extraversion, openness, conscientiousness, and agreeableness but low on neuroticism (Liu et al., 2019; Tran & Von Korflesch, 2016). Additionally, studies have indicated that creative people display high levels of entrepreneurial intention (Zampetakis, 2008) and that creativity is a crucial contributor to entrepreneurial intention. Scholars further indicated that social entrepreneurs exhibit significantly higher levels of creativity and risk-taking ability than traditional entrepreneurs (Smith et al., 2014). Recently, Hockerts' model has been criticized because of its lack of personal attributes, such as personality traits and creativity (Liang et al., 2019; Liu et al., 2019). However, a few studies have been able to determine the relationship among personality traits, entrepreneurial creativity, SEI precursors, and SEI, particularly in the East (Ip et al., 2018; Liang et al., 2019; Pen & Liang, 2019).

This article reports the results of five subsequent studies that extended Hockerts' SEI model by further including personality traits as precursors and entrepreneurial creativity as a mediator. Personality traits were treated as a critical precursor along with prior experience with social problems, while entrepreneurial creativity was treated as a mediating precursor along with self-efficacy as a proxy for internal behavioral control (Ajzen, 1991); empathy, moral obligation, and perceived social support were also included as mediators.

Hypotheses development

Constructs of entrepreneurial creativity

Creativity is not only a crucial motivator of entrepreneurial intention (Olufunso, 2010), but also plays an important part throughout the entrepreneurial process, starting from the conception of the initial insight and generation of new ideas to the production of novel value configurations and organization of competitive advantages, as well as from the implementation of the strategic choices to the initiation, operation, and growth of the new venture (Alvarez & Barney, 2007; Shalley & Perry-Smith, 2008). Creative people generally exhibit high levels of entrepreneurial desirability (Zampetakis, 2008). In the context of this article, entrepreneurial creativity refers to the entrepreneurial capacity to discover and exploit business opportunities for generating and implementing creative ideas, leading to the establishment of new ventures or revival of existing organizations (Amabile, 1997; Puhakka, 2012).

Social entrepreneurs strive to develop creative mechanisms for circumventing social and environmental barriers. They exhibit statistically higher levels of creativity and risk-taking than commercial entrepreneurs (Smith et al., 2014). When solving social problems, social entrepreneurs are highly pragmatic, while striving for innovation (Weerawardena & Sullivan Mort, 2006). In addition, their determination and resourcefulness match those of business entrepreneurs (Dees, 2007). Entrepreneurial creativity can be assessed based on two dimensions, originality and usefulness (Runco & Jaeger, 2012). Novel and valuable ideas are the bases of entrepreneurship, and entrepreneurs must recognize, evaluate, and exploit such ideas and opportunities to be successful (Ward, 2004). Entrepreneurial creativity has a considerable impact on SEI, particularly in terms of entrepreneurial originality (Ip et al., 2018; Liu et al., 2019). Based on the literature review, the first hypothesis was proposed, as follows:

H1. Entrepreneurial creativity is positively associated with SEI.

Constructs of prior experience with social problems and entrepreneurial creativity

Prior experience in each task domain has been identified as a crucial predictor of creative



performance (Amabile, 1997) because it could eliminate unnecessary trials for methods to perform a task, possibly leading to problem resolution. Amabile (2001) emphasized that the degree of skill possessed for domain-specific tasks depends on the individual's experience and knowledge in that domain. Scholars have reported that creative output is rarely the product of discrete jumps; it is most often the result of tasks performed with prior experience and knowledge, although the stimulus may be unique (Puhallo, 2012). Experienced entrepreneurs typically use analogies and frame their decisions by using effectual logic (Dew, Read, Sarasvathy, & Wiltbank, 2009). However, individual or organizational experiences can bias decision-making and may not always be beneficial for market alertness and business creation (Liang, Liang, & Liu, 2017). Based on the first hypothesis regarding the association between entrepreneurial creativity and SEI, the second set of hypotheses was developed as follows:

H2a. Prior experience with social problems is positively associated with entrepreneurial creativity.

H2b. Prior experience with social problems is positively associated with SEI through entrepreneurial creativity.

Constructs of personality traits

The five-factor model (FFM) of personality is an extensively tested model of personality (Ariani, 2013). Thompson (2008) developed the International English Big-Five Mini-Markers and confirmed the invariance of the FFM structure across cultural contexts. The FFM comprises the five dimensions of extraversion, openness, neuroticism, conscientiousness, and agreeableness. Extraversion characterizes people who are energetic, talkative, sociable, enthusiastic, and ambitious. Openness refers to the tendency of preferring variety, an active imagination, esthetic sensitivity, intellectual curiosity, and flexibility as well as being unconventional. Neuroticism is the tendency to experience negative emotions such as anxiety, depression, anger, sadness, and vulnerability. Conscientiousness refers to a person's degree of self-control, organization, persistence, hard work, and active planning and performance

of tasks. People who achieve higher scores for agreeableness are cooperative, trusting, compliant, caring, and altruistic.

Recent meta analytic studies have reported strong associations between personality traits and entrepreneurship (Brandstätter, 2011; Zhao et al., 2010), indicating that entrepreneurs or people with entrepreneurial intentions typically achieve higher scores for extraversion, openness, and conscientiousness, while they get lower scores for neuroticism and agreeableness. However, SE is different from profit-oriented business. Within the limited study results, the positive effects of agreeableness and openness on SEI are warranted, whereas extraversion, neuroticism, and conscientiousness have inconsistent influences on SEI (Ip et al., 2018; Liu et al., 2019; Nga & Shamuganathan, 2010; Tran & Von Korflesch, 2016). These conflicting research outcomes may have resulted from the differences in the studied sociocultural characteristics, including geographical location, age, and the nature of social problems.

In addition, studies have revealed that creative personal identity and creative self-efficacy positively associate with openness and extraversion, but inversely associate with agreeableness. On the other hand, the effects of neuroticism and conscientiousness are unclear (Karwowski, Lebuda, Wisniewska, & Gralewski, 2013). The uncertain results may be attributable to an incomplete investigation of the interrelationship among these five traits and the two creativity dimensions; these associations have been clarified by recent research. For example, Chang and colleagues (2015) suggested that openness affects both, originality and usefulness, while conscientiousness and agreeableness only affect usefulness. Chen and Chen (2015) indicated that openness and conscientiousness positively predict both originality and usefulness, while agreeableness inversely predicts originality. Hence, the third set of hypotheses was proposed as follows:

H3a. Extraversion, openness, and conscientiousness are positively associated with entrepreneurial creativity.

H3b. Extraversion, openness, and conscientiousness are positively associated with SEI through entrepreneurial creativity.

H3c. Neuroticism and agreeableness are inversely associated with entrepreneurial creativity.

H3d. Neuroticism and agreeableness are inversely associated with SEI through entrepreneurial creativity.

Regarding the relationship among the five traits and empathy, Del Barrio, Aluja, and Garcia (2004) indicated that empathy strongly associates with agreeableness and marginally with extraversion, openness, and conscientiousness. Their analyses did not show a valid correlation between empathy and neuroticism although another research has reported that experiencing anxiety or fear would improve an individuals' ability of sensing another individual's emotional state (Eysenck & Eysenck, 1985). Melchers et al. (2016) found similar trends in the relationship between personality and empathy among study populations from different countries and determined that agreeableness and conscientiousness are the strongest predictors for empathy, followed by extraversion and openness. In their study, neuroticism was identified to be crucial for explaining personal distress. Therefore, the fourth set of hypotheses was developed as follows:

H4a. Extraversion, openness, neuroticism, conscientiousness, and agreeableness are positively associated with empathy.

H4b. Extraversion, openness, neuroticism, conscientiousness, and agreeableness are positively associated with SEI through empathy.

Matsuba and Walker (2004) studied the personality traits of typical young adults who had extraordinary moral commitment toward various social organizations and found that these subjects were more agreeable, and more willing to enter close relationships than their counterparts. Studies have indicated that conscientiousness and agreeableness are robust predictors of ethical behavior (Brown & Treviño, 2006; Walker, Frimer, & Dunlop, 2010). Kalshoven, Den Hartog, and De Hoogh, (2011) further determined that conscientiousness and agreeableness are positively associated with ethical behavior, while neuroticism was inversely correlated. They explained that neurotic leaders are unlikely to communicate openly and honestly about their expectations of subordinates. In addition, Thoroughgood, Padilla, Hunter, and Tate (2012) found that introverts typically succumb to the

pressures to remain silent and compliant to unethical leadership. Individuals with 'a cognitively rigid disposition,' the opposite of the openness dimension, tend to support the legitimate authorities to fulfill their needs of stability, clarity, and order. On these bases, the fifth set of hypotheses was proposed as follows:

H5a. Extraversion, openness, conscientiousness, and agreeableness are positively associated with moral obligation.

H5b. Extraversion, openness, conscientiousness, and agreeableness are positively associated with SEI through moral obligation.

H5c. Neuroticism is inversely associated with moral obligation.

H5d. Neuroticism is inversely associated with SEI through moral obligation.

Prior research has indicated that both extraversion and agreeableness predict levels of self-efficacy (Reed, Bruch, & Haase, 2004). Peterson and Whiteman (2007) determined that openness is strongly correlated to self-efficacy in university students. De Feyter, Caers, Vigna, and Berings (2012) identified a positive but indirect effect of neuroticism on academic performance at higher levels of self-efficacy, complemented by a positive direct effect of neuroticism at lower levels of self-efficacy. Moreover, scholars have consistently found that conscientiousness influences self-efficacy (Lee & Klein, 2002). However, some studies showed different research outcomes. For example, Wang et al. (2016) found that there is no relationship between neuroticism and self-efficacy. Brown and Gali (2016) analyses also showed that lower neuroticism contributed to higher self-efficacy. Based on these reports, the sixth set of hypotheses was developed as follows:

H6a. Extraversion, openness, conscientiousness, and agreeableness are positively associated with self-efficacy.

H6b. Extraversion, openness, conscientiousness, and agreeableness are positively associated with SEI through self-efficacy.

H6c. Neuroticism is inversely associated with self-efficacy.

H6d. Neuroticism is inversely associated with SEI through self-efficacy.

Successful entrepreneurs rely on effective capitals and social support. The personality traits of social entrepreneurs differ from those of the

Table 1. Descriptive analysis of Study 1 ($n = 615$).

	University students ($n = 539$)				Media professionals ($n = 76$)			
Gender	225 men	314 women			38 men	4–8	9–12	38 women
Academic standings or seniority	386 undergraduates	153 postgraduates			≤3 years 18	17	19	≥13 years 22
Age	≤20 years 152	21–25 335	26–30 18	≥31 years 34	≤30 years 17	31–35 12	36–40 17	≥41 years 30

general population, and these traits influence the selection of methods they use for gaining social support (Praszkier, Nowak, & Zabłocka-Bursa, 2009). Studies have indicated that individuals who achieve low scores for neuroticism and high scores for extraversion, agreeableness, and openness show higher levels of perceived social support (Seavers, Johnson, & Darnold, 2015; Swickert, Hittner, & Foster, 2010). In addition, some scholars have suggested that people exhibiting strong conscientiousness tend to adhere rigidly to established thoughts and behaviors and are unlikely to capitalize on opportunities to engage in the cross-fertilization of ideas (Baer, Oldham, Jacobsohn, & Hollingshead, 2008). Based on these inferences, the seventh set of hypotheses was proposed as follows:

H7a. Extraversion, openness, and agreeableness are positively associated with perceived social support.

H7b. Extraversion, openness, and agreeableness are positively associated with SEI through perceived social support.

H7c. Neuroticism and conscientiousness are inversely associated with perceived social support.

H7d. Neuroticism and conscientiousness are inversely associated with SEI through perceived social support.

539 university students (only juniors and above were included) and 76 media professionals completed all parts of the survey (Table 1). Participation was voluntary, confidential, and anonymous.

Instruments

This study adopted Hockerts' (2017) model; from this model, 15 items about SEI precursors were adopted. Thompson's International English Big-Five Mini-Markers (Thompson, 2008) was also adopted. Of the 40 adjectives in the original personality trait model, 20 with the highest factor loadings were selected as survey items. Another 12 items used by Ip et al. (2018) to assess entrepreneurial creativity that were developed using the research by Amabile (1997) and Puhakka (2012) were revised and included in this study. Finally, a total of 8 items that measured the entrepreneurial intention were adopted from the study by Wang et al. (2016) and revised to collect information regarding the SE context. The items were measured using a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The factorial validity of the factor structures was tested using LISREL (Version 8.80) by performing CFA with the maximum likelihood estimation.

Procedure

The survey was conducted using both online and offline channels. An online survey was developed and administered by the research team. The survey platform, chosen based on ease of use and economic feasibility, was provided and supported by Taiwan Trend Research Co., Ltd. (<http://www.twtrend.com/en/equip.php>). The survey web address was sent via email and posted on Facebook to provide the participants with a convenient and immediate means of responding. The offline survey was performed during the routine classes in two universities in Taiwan and one university in Hong Kong. The surveys were

Study 1: Confirmatory factor analysis

Method

Based on the models introduced by Mair and Noboa (2006) and Hockerts (2017), a revised SEI model was proposed, and a CFA was performed on the scales used in this study.

Samples

Students and media professionals employed in Taiwan comprised the study population. In total, 615 respondents from Taiwan were recruited and served as a validation sample to confirm the factor structures of the four scales using a CFA. Of these respondents,

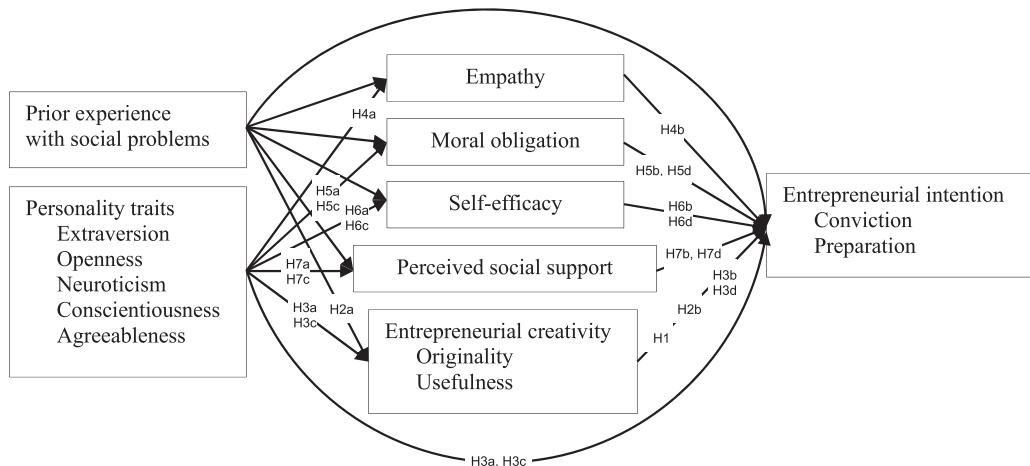


Figure 1. The research framework of the current study.

Table 2. The confirmatory factor analysis ($n = 615$).

Item factor	PE	EM	MO	SE	SS	EX	OP	NE	CS	AG	OR	US	CN	PR
1	.80	.79	.87	.73	.68	.82	.75	.46	.72	.61	.86	.66	.51	.91
2	.85	.80	.88	.85	.85	.88	.56	.57	.62	.50	.86	.26	.73	.88
3	.74	.83	.86	.63	.87	.64	.62	.64	.77	.60	.47	.57	.86	.80
4						.60	.47	.71	.64	.40	.77	.87	.87	.71
5											.90	.85		
6											.88	.76		
Measurement errors	.28 ~ .45	.31 ~ .37	.22 ~ .26	.28 ~ .60	.25 ~ .54	.22 ~ .64	.44 ~ .78	.49 ~ .79	.41 ~ .61	.62 ~ .84	.19 ~ .78	.24 ~ .93	.24 ~ .74	.18 ~ .50
Composite reliability	.843	.852	.903	.774	.842	.832	.687	.687	.781	.592	.914	.825	.844	.897
Average variance extracted	.643	.658	.757	.536	.642	.559	.361	.358	.472	.267	.647	.460	.586	.686

Note: PE = Prior experience, EM = Empathy, MO = Moral obligation, SE = Self-efficacy, SS = Perceived social support, EX = Extraversion, OP = Openness, NE = Neuroticism, CS = Conscientiousness, AG = Agreeableness, OR = Originality, US = Usefulness, CN = Conviction, PR = Preparation.

administered by graduate assistants who were accompanied by their class instructor.

Results

Figure 1 depicts the research framework of the present study that was designed using the model proposed by Hockerts (2017), based on the findings of Ajzen (1991) and Mair and Noboa (2006):

The CFA results indicated that the five-factor solution of the precursors of SEI, five-factor solution of personality traits, two-factor solution of entrepreneurial creativity, and two-factor solution of SEI yielded a good fit ($\chi^2 = 5543.20$, $df = 1339$, $p < .005$, RMSEA = .037, SRMR = .063, CFI = .94, NFI = .92, NNFI = .93). The convergent validity of each factor was assessed using standardized factor loading, composite reliability, and average variance extracted (Table 2). Discriminant validity was tested by calculating the confidence intervals of the interfactor correlation estimates, denoted as φ .

The results indicated that all the factors of SEI precursors, personality traits, entrepreneurial creativity, and SEI achieved both convergent validity (factor loading > 0.5) and discriminant validity. Specifically, the φ values among the five precursor factors, among all five personality traits, between factors 1 and 2 of entrepreneurial creativity, and between factors 1 and 2 of SEI ranged from -0.3680 to 0.5884, 0.2416 to 0.8192, 0.7808 to 0.8592, and 0.7908 to 0.8692, respectively (all $1 > \varphi > -1$).

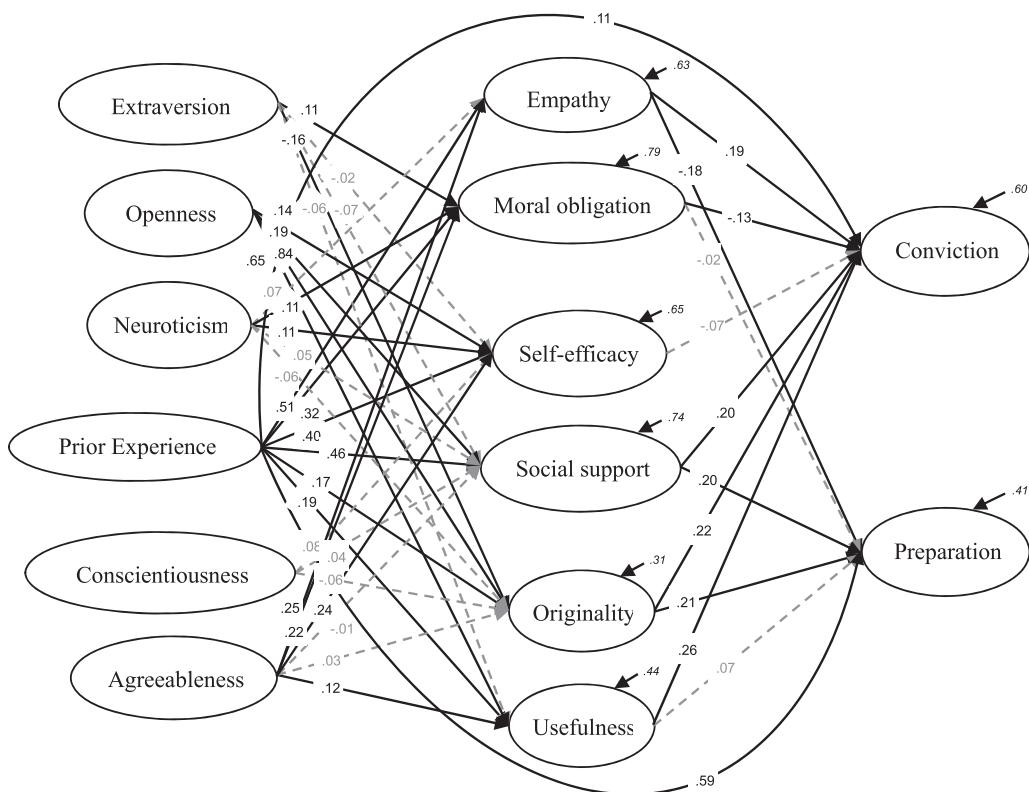
Study 2: Testing the proposed model

Method

In total, 350 university students, irrespective of the selected major, in Taiwan were recruited for Study 2. These study subjects served as a model-building sample for constructing the proposed mediation model. Of these respondents, 326 completed all parts of the survey (Table 3). Similar to that in Study 1, participation was

Table 3. Descriptive analysis of Study 2 ($n = 326$).

	Taiwanese students' regardless majors					
Gender	131 men		224 undergraduates		195 women	
Academic standings	≤ 20 years	94	224 undergraduates	21–25	197	102 postgraduates
Age				26–30	15	≥ 31 years
						20

**Figure 2.** Social entrepreneurial intention model 1 (TWG, $n = 326$).

Note: TWG refers to Taiwanese university students' regardless majors

voluntary, confidential, and anonymous. The measurement tools and survey procedures were identical to those used in Study 1. The same online survey was reactivated two weeks after Study 1, and the survey web address was again sent through email and posted on Facebook. The respondents who participated in Study 1 were instructed not to participate in Study 2. The proposed 7 sets of hypotheses were tested using LISREL (Version 8.80) by performing structural equation modeling with maximum likelihood estimation.

Results

The mediating effects were examined by following the four steps suggested by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002).

The final model of this Taiwanese student sample showed a fit comparable to that of the initial model ($\chi^2 = 3689.17$, $df = 1357$, $p < .005$, RMSEA = .081, SRMR = .082, CFI = .92, NFI = .90, NNFI = .91), and the results explained a substantial level of variance for the dimensions of conviction ($R^2 = .40$) and preparation ($R^2 = .59$). In Figure 2, the solid line indicates a significant effect, and the dotted line indicates a non-significant effect. Only the statistically significant effects have been discussed in detail.

Accordingly, originality predicted two dimensions of SEI, while usefulness only predicted the conviction of SEI; hence, H1 was partially supported. Prior experience with social problems positively predicted entrepreneurial creativity, and positively predicted SEI through entrepreneurial creativity; that is, H2a was supported

Table 4. Effects of latent independent and mediating variables (TWG, n = 326).

Independent and mediating variables	Direct effect		Indirect effect		Total	
	Conviction	Preparation	Conviction	Preparation	Conviction	Preparation
1. Prior experience	0.11	0.59	0.21	0.05	0.33	0.64
2. Extraversion	–	–	–0.08	–0.05	–0.08	–0.05
3. Openness	–	–	0.38	0.26	0.38	0.26
4. Neuroticism	–	–	–0.01	–0.02	–0.01	–0.02
5. Conscientiousness	–	–	–0.01	0.00	–0.01	0.00
6. Agreeableness	–	–	0.04	–0.04	0.04	–0.04
7. Empathy	0.19	–0.18	–	–	0.19	–0.18
8. Moral obligation	–0.13	–0.02	–	–	–0.13	–0.02
9. Self-efficacy	–0.07	–	–	–	–0.07	–
10. Perceived social support	0.20	0.20	–	–	0.20	0.20
11. Originality	0.22	0.21	–	–	0.22	0.21
12. Usefulness	0.26	0.07	–	–	0.26	0.07

Table 5. Descriptive analysis of Study 3 (n = 331).

Taiwanese students majoring in agriculture						
Gender	180 men			151 women		
Academic standings	206 undergraduates			125 postgraduates		
Age	≤20 years	21–25	26–30	≥ 31 years		
	110	121	32	68		

and H2b were partially supported. Extraversion and neuroticism inversely predicted SEI through entrepreneurial creativity, while openness, conscientiousness, and agreeableness positively predicted SEI through entrepreneurial creativity. Thus, H3a, H3b, H3c, and H3d were partially supported. Only agreeableness positively predicted SEI through empathy; hence, H4a and H4b were partially supported. Extraversion, neuroticism, and agreeableness positively predicted SEI through moral obligation, indicating that H5a and H5b were partially supported, and H5c and H5d were rejected. Neuroticism positively predicted self-efficacy, but the effect of self-efficacy on SEI was non-significant; hence, H6a, H6b, H6c, and H6d were rejected. Moreover, only openness positively predicted SEI through perceived social support; that is, H7a and H7b were partially supported, and H7c and H7d were rejected. Table 4 presents the direct and indirect effects of the latent constructs.

Study 3: Testing the proposed model for agricultural major

Method

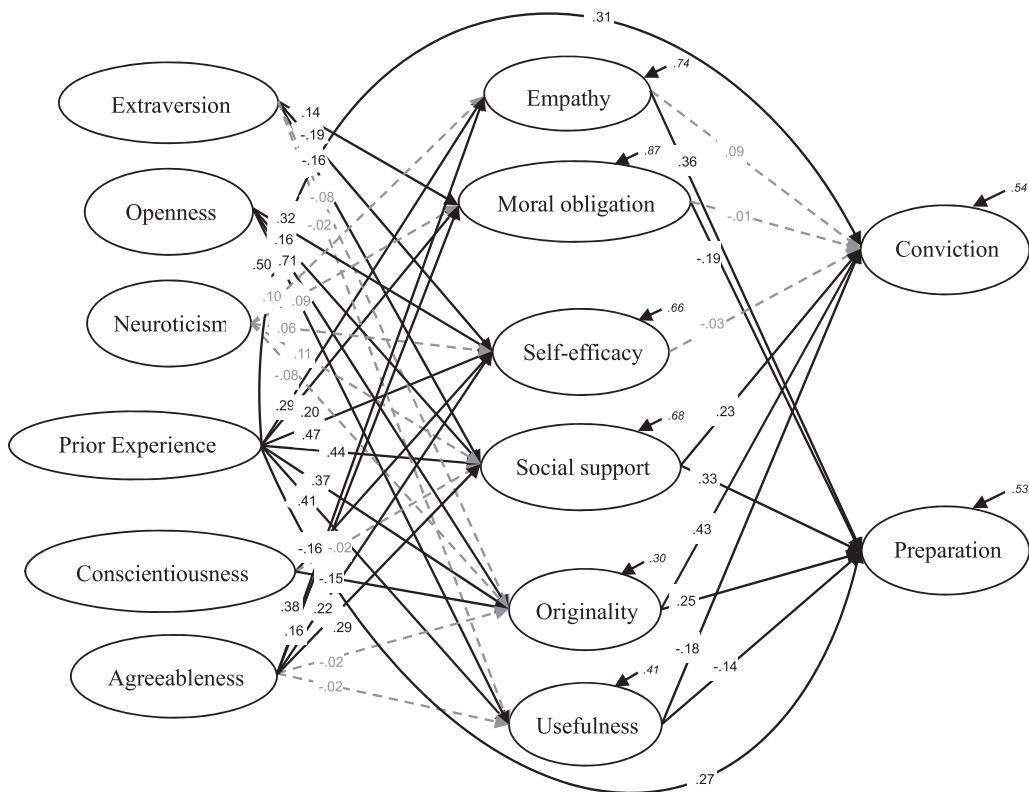
In total, 350 university students majoring in agriculture in Taiwan were recruited for Study 3 and served as a model-comparison sample in terms of different academic majors. Of these respondents, 331 completed all parts of the survey (Table 5). The measurement tools and survey procedures were

identical to those used in Study 1. The same online survey was reactivated one month after Study 1, and the survey web address was again sent via email and posted on Facebook. The respondents who participated in Study 1 and Study 2 were instructed not to participate in this study.

Results

The final model of this Taiwanese student sample that comprised students majoring in agriculture (Figure 3) showed a fit comparable to that of the initial model ($\chi^2 = 3274.00$, $df = 1357$, $p < .005$, RMSEA = .067, SRMR = .066, CFI = .95, NFI = .92, NNFI = .94). The results demonstrated substantial variation for the dimensions of conviction ($R^2 = .46$) and preparation ($R^2 = .47$). Only the statistically significant effects are discussed in detail.

According to the data, originality and usefulness predicted two dimensions of SEI; hence, H1 was supported. Prior experience with social problems positively predicted SEI through entrepreneurial creativity; i.e., H2a and H2b were supported. Openness positively predicted SEI through entrepreneurial creativity, while conscientiousness is inversely associated with SEI through originality; thus, H3a and H3b were partially supported and H3c and H3d were rejected. Only agreeableness positively predicted SEI through empathy; hence, H4a and H4b were partially supported. Extraversion and agreeableness positively

**Figure 3.** Social entrepreneurial intention model 2 (TWA, $n = 331$).

Note: TWA refers to Taiwanese university students in agricultural major

Table 6. Effects of latent independent and mediating variables (TWA, $n = 331$).

Independent and mediating variables	Direct effect		Indirect effect		Total	
	Conviction	Preparation	Conviction	Preparation	Conviction	Preparation
1. Prior experience	0.31	0.27	0.20	0.24	0.51	0.51
2. Extraversion	-	-	-0.06	-0.10	-0.06	-0.10
3. Openness	-	-	0.24	0.16	0.24	0.16
4. Neuroticism	-	-	0.00	0.03	0.00	0.03
5. Conscientiousness	-	-	-0.07	-0.05	-0.07	-0.05
6. Agreeableness	-	-	0.09	0.20	0.09	0.20
7. Empathy	0.09	0.36	-	-	0.09	0.36
8. Moral obligation	-0.01	-0.19	-	-	-0.01	-0.19
9. Self-efficacy	-0.03	-	-	-	-0.03	-
10. Perceived social support	0.23	0.33	-	-	0.23	0.33
11. Originality	0.43	0.25	-	-	0.43	0.25
12. Usefulness	-0.18	-0.14	-	-	-0.18	-0.14

predicted SEI through moral obligation, indicating that H5a and H5b were partially supported and H5c and H5d were rejected. Only neuroticism could not predict self-efficacy and the effect of self-efficacy on SEI was non-significant; hence, H6a was supported and H6b, H6c, and H6d were rejected. Openness and agreeableness positively predicted SEI through perceived social support, whereas extraversion is inversely associated with SEI through perceived social support; i.e., H7a and H7b were partially supported and H7c and H7d were rejected. Table 6 presents the direct and indirect effects of the latent constructs.

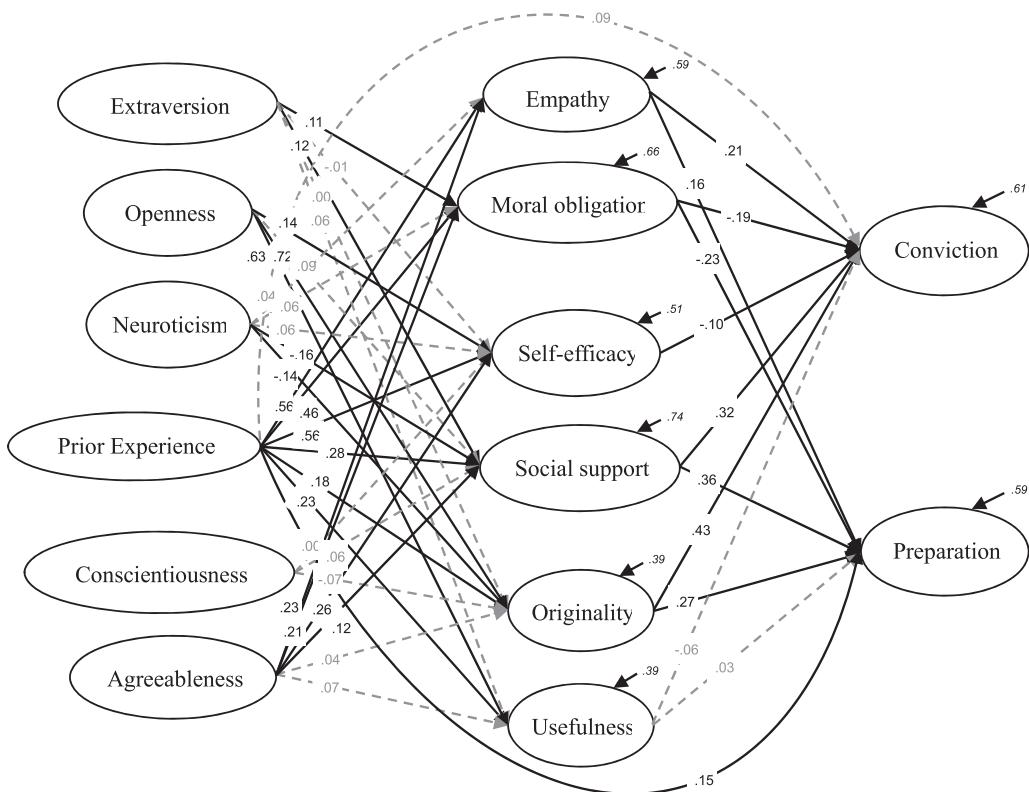
Study 4: Testing the proposed model for students in Hong Kong

Method

In total, 350 university students in Hong Kong were recruited for Study 4. They served as a model-comparison sample in terms of the different socioeconomic contexts. Of these respondents, 323 completed all parts of the survey (Table 7). The measurement tools and survey procedures were identical to those used in Study 1. The same online survey was also reactivated one month after Study 1, and the survey

Table 7. Descriptive analysis of Study 4 ($n = 323$).

	University students in Hong Kong				
Gender	123 men		240 undergraduates		200 women
Academic standings	≤ 20 years 81		21–25 173		83 postgraduates
Age					≥ 31 years 29

**Figure 4.** Social entrepreneurial intention model 3 (HKG, $n = 323$).

Note: HKG refers to university students in Hong Kong

web address was again sent via email and posted on Facebook.

Results

The final model of the Hong Kong student sample (Figure 4) showed a fit comparable to that of the initial model ($\chi^2 = 3247.00$, $df = 1357$, $p < .005$, RMSEA = .070, SRMR = .070, CFI = .94, NFI = .91, NNFI = .94), and the results explained a substantial level of variance for the dimensions of conviction ($R^2 = .39$) and preparation ($R^2 = .41$). Only the statistically significant effects are discussed in detail.

According to the results, only originality predicted two dimensions of SEI; hence, H1 was partially supported. Prior experience with social

problems positively predicted SEI through entrepreneurial creativity; i.e., H2a was supported and H2b was partially supported. Extraversion and openness positively predicted SEI through originality, while neuroticism was inversely associated with SEI through originality; thus, the third set of hypotheses was partially supported. Only agreeableness positively predicted SEI through empathy; hence, H4a and H4b were partially supported. Extraversion and agreeableness positively predicted SEI through moral obligation; indicating that H5a and H5b were partially supported, and H5c and H5d were rejected. Openness and agreeableness positively predicted SEI through self-efficacy; hence, H6a and H6b were partially supported and H6c and H6d were rejected. Extraversion and agreeableness positively

Table 8. Effects of latent independent and mediating variables (HKG, n = 323).

Independent and mediating variables	Direct effect		Indirect effect		Total	
	Conviction	Preparation	Conviction	Preparation	Conviction	Preparation
1. Prior experience	0.09	0.15	0.12	0.14	0.21	0.29
2. Extraversion	–	–	0.01	0.02	0.01	0.02
3. Openness	–	–	0.28	0.24	0.28	0.24
4. Neuroticism	–	–	-0.12	-0.10	-0.12	-0.10
5. Conscientiousness	–	–	-0.01	0.00	-0.01	0.00
6. Agreeableness	–	–	0.03	0.04	0.03	0.04
7. Empathy	0.21	0.16	–	–	0.21	0.16
8. Moral obligation	-0.19	-0.23	–	–	-0.19	-0.23
9. Self-efficacy	-0.10	–	–	–	-0.10	–
10. Perceived social support	0.32	0.36	–	–	0.32	0.36
11. Originality	0.43	0.27	–	–	0.43	0.27
12. Usefulness	-0.06	0.03	–	–	-0.06	0.03

predicted SEI through perceived social support, whereas neuroticism was inversely associated with SEI through perceived social support; i.e., the seventh set of hypotheses was partially supported. **Table 8** presents the direct and indirect effects of the latent constructs.

Study 5: Testing the proposed model for Taiwanese media professionals

Method

In total, 350 media professionals in Taiwan were recruited for Study 5 and served as a model-comparison sample in terms of different work experiences. Of these respondents, 335 completed all parts of the survey (**Table 9**). The measurement tools and survey procedures were identical to those used in Study 1. The same online survey was also reactivated one month after Study 1, and the survey web address was again sent via email and posted on Facebook. The respondents who participated in Study 1 were instructed not to participate in this study.

Results

The final model of this media professional sample in Taiwan (**Figure 5**) showed a fit comparable to that of the initial model ($\chi^2 = 3849.01$, $df = 1357$, $p < .005$, RMSEA = .077, SRMR = .080, CFI = .92, NFI = .90, NNFI = .91), and the results explained a substantial level of variance for the dimensions of conviction ($R^2 = .37$) and preparation ($R^2 = .37$). Only those effects that were statistically significant are discussed in detail

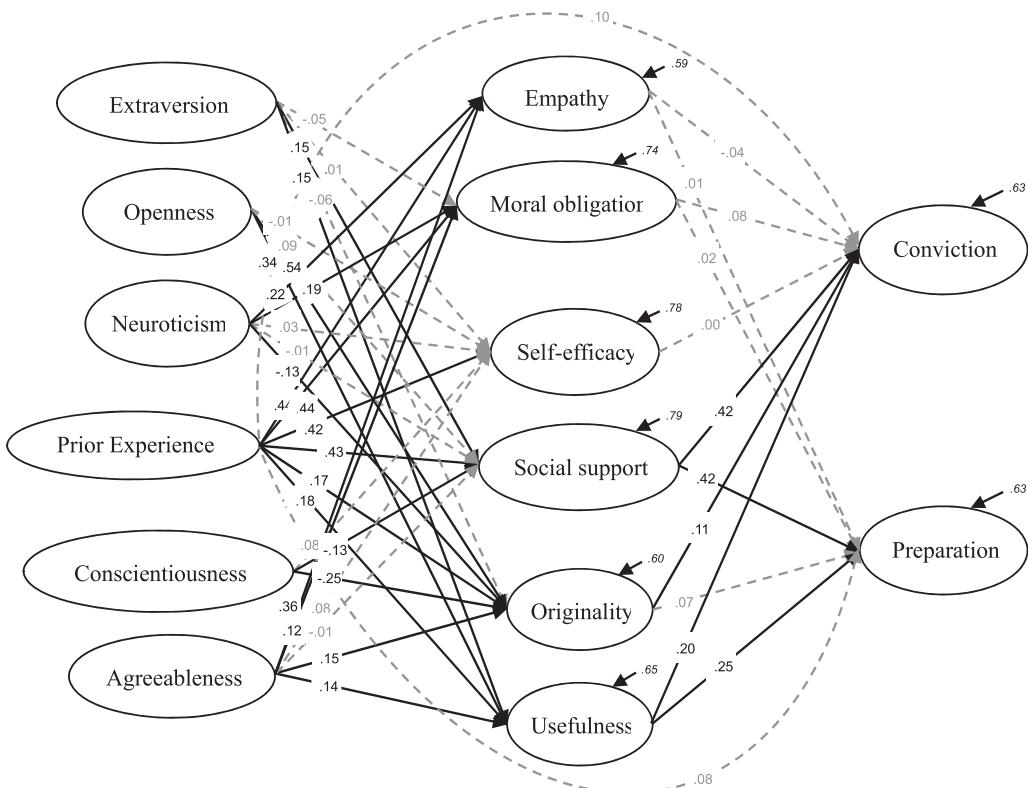
Accordingly, usefulness predicted two dimensions of SEI, while originality only predicted the

Table 9. Descriptive analysis of Study 5 (n = 335).

Taiwanese media professionals				
Gender	177 men		158 women	
Seniority	≤ 3 years	4–8	9–12	≥ 13 years
	59	52	101	123
Age	≤ 30 years	31–35	36–40	≥ 41 years
	43	68	77	147

conviction of SEI; hence, H1 was partially supported. Prior experience with social problems positively predicted SEI through entrepreneurial creativity; i.e., H2a was supported and H2b was partially supported. Openness and agreeableness positively predicted SEI through entrepreneurial creativity, extraversion positively predicted SEI through usefulness, while neuroticism and conscientiousness were inversely associated with SEI through originality. Thus, the third set of hypotheses was partially supported. Neuroticism and agreeableness positively predicted SEI through empathy; hence, H4a and H4b were partially supported. Neuroticism and agreeableness positively predicted moral obligation, but moral obligation could not predict SEI, indicating that H5a was partially supported, and H5b, H5c and H5d were rejected. The effect of self-efficacy on SEI was non-significant; hence, H6a, H6b, H6c, and H6d were rejected. Extraversion positively predicted SEI through perceived social support, while conscientiousness was inversely associated with SEI through perceived social support; i.e., the seventh set of hypotheses was partially supported. **Table 10** presents the direct and indirect effects of the latent constructs.

The differences between the two samples in Studies 3, 4, and 5 were tested using multiple group structural modeling respectively; the results have been presented in **Table 11**.

**Figure 5.** Social entrepreneurial intention model 4 (TWM, $n = 335$).

Note: TWM refers to media professionals in Taiwan

Table 10. Effects of latent independent and mediating variables (TWM, $n = 335$).

Independent and mediating variables	Direct effect		Indirect effect		Total	
	Conviction	Preparation	Conviction	Preparation	Conviction	Preparation
1. Prior experience	0.10	0.08	0.25	0.25	0.35	0.33
2. Extraversion	–	–	0.10	0.10	0.10	0.10
3. Openness	–	–	0.09	0.09	0.09	0.09
4. Neuroticism	–	–	-0.01	-0.01	-0.01	-0.01
5. Conscientiousness	–	–	-0.08	-0.07	-0.08	-0.07
6. Agreeableness	–	–	0.03	-0.05	0.03	-0.05
7. Empathy	-0.04	0.01	–	–	-0.04	0.01
8. Moral obligation	0.08	0.02	–	–	0.08	0.02
9. Self-efficacy	0.00	–	–	–	0.00	–
10. Perceived social support	0.42	0.42	–	–	0.42	0.42
11. Originality	0.11	0.07	–	–	0.11	0.07
12. Usefulness	0.20	0.25	–	–	0.20	0.25

Discussion

Before formally discussing the results of these studies, a brief overview of the differences in social entrepreneurship between the East and the West is provided. Kerlin (2010) compared the emerging concept, practices, and context of social enterprises across seven regions of the world and indicated that variations in the socioeconomic context may account for international differences in social enterprises. For example, social entrepreneurship in most Western countries focuses on social benefits, whereas that in Southern Asia,

social entrepreneurship focuses on sustainable development. Western Europe is the leader in this sector with legal designations for social enterprises established in several European countries. However, Southeast Asia has not begun to move in this direction, and little discussion is available on the topic at present. Other related reports have conveyed similar results (Defourny, Kuan, Defourny, & Kim, 2011).

The results of Study 1 confirmed the factor structures of the scales used in the subsequent studies. In particular, this study found that it is

Table 11. Differences between two samples in Studies 3, 4, and 5.

	$\Delta\chi^2$	p
Study 3		
Effect of prior experience on conviction	4.14	.042
Effect of prior experience on originality	9.68	.002
Effect of prior experience on usefulness	10.05	.002
Effect of agreeableness on empathy	6.25	.012
Effect of agreeableness on perceived social support	10.85	.001
Effect of empathy on preparation	11.52	.001
Effect of moral obligation on preparation	3.82	.050
Effect of usefulness on conviction	6.65	.010
Study 4		
Effect of prior experience on preparation	10.58	.001
Effect of neuroticism on perceived social support	3.85	.050
Effect of empathy on preparation	3.83	.050
Effect of usefulness on conviction	3.82	.050
Study 5		
Effect of prior experience on preparation	18.69	.000
Effect of prior experience on empathy	5.04	.025
Effect of extraversion on moral obligation	5.33	.021
Effect of extraversion on perceived social support	4.99	.025
Effect of extraversion on originality	5.41	.020
Effect of extraversion on usefulness	5.21	.022
Effect of openness on originality	4.82	.028
Effect of perceived social support on conviction	5.35	.021
Effect of perceived social support on preparation	5.84	.016

valid to divide the SEI precursors into empathy, moral obligation, self-efficacy, perceived social support, and prior experience with social problems; personality traits into extraversion, openness, neuroticism, conscientiousness, and agreeableness; entrepreneurial creativity into originality and usefulness; and SEI into conviction and preparation. Additionally, Study 1 proposes a new mediation model of SEI that includes personality traits as a precursor and entrepreneurial creativity as a mediator. This revised model was further tested and successfully validated in subsequent studies. Moreover, the results of Study 2 and Study 3 were compared in terms of the differences in the academic majors; those of Study 2 and Study 4 were compared in terms of the different socioeconomic contexts; and those of Study 2 and Study 5 were compared in terms of the differences in professional experiences. A detailed discussion of these effects and differences is presented in the following section.

Validation of the proposed mediation model

Direct effects

The data indicated that usefulness was the strongest predictor for SEI conviction, followed by originality, perceived social support, and empathy. These results concur with the findings of

previous studies (Dees, 2007; Estrin et al., 2013; Mair & Noboa, 2006; Olufunso, 2010; Smith et al., 2014), implying that people possessing higher levels of entrepreneurial creativity and social support are more confident about confronting threatening challenges. While prior experience revealed minor effects on entrepreneurial conviction, moral obligation exerted negative effects. Bacq and colleagues (2016) indicated that the motives of social entrepreneurs could be ‘impurely altruistic’ and may include the desire for status, recognition, respect, friendship, or other private benefits. In other words, SEI may not be perceived as a ‘purely’ moral intent.

In addition, SEI preparation was substantially influenced by prior experience, originality, social support, and empathy. Prior experience had a dominant impact on entrepreneurial preparation; i.e., students with richer prior experiences with social problems are likely to maintain high levels of action-related intention in social innovation. This result is in keeping with previous findings (Backman & Smith, 2000; Hockerts, 2017; Kautonen et al., 2010; Zampetakis, 2008), indicating that novel ideas, practical experiences, and strong supports encourage an individual to challenge the conventional societal norms and provide innovative solutions to on-going social issues. It is noteworthy that empathy had a negative effect on entrepreneurial preparation. It is possible that individuals with strong empathy would share their emotional responsiveness directly through other action channels such as making donations and getting involved in voluntary engagements, rather than adhere to SE.

Indirect effects

This study found that the five personality traits indirectly predicted SEI, proving that these traits, especially openness, were SEI precursors. Their effects on SEI were manifested through the mediators suggested in the current study, particularly entrepreneurial creativity. This can be explained by the fact that openness was a robust predictor of creativity (Chang, Peng, Lin, & Liang, 2015). The other four traits exerted marginal effects, implying that SEI is influenced by specific personality traits. Surprisingly, the trait of agreeableness, a strong SEI predictor reported in previous

studies, did not exhibit significant influences in this study. This may be due to the confounding effect exerted by the mediating effects of empathy and moral obligation in this study. The influences of personality traits can be interpreted after discussing the subsequent studies. In addition, prior experience predicted entrepreneurial conviction chiefly through empathy and social support, indicating that individual previous experiences can enhance belief building through certain motivators such as intrinsic compassion and extrinsic sustenance.

Total effects

According to the data, openness was the strongest predictor facilitating the SE conviction of Taiwanese students, irrespective of the selected major, followed by prior experience, usefulness, and originality. In addition, prior experience was the strongest predictor for facilitating SE preparation, followed by openness, originality, and social support. In summary, entrepreneurial educators should focus on encouraging students who are open to new experiences and creating diverse opportunities for SE teamwork to enable the students to be acquainted with each other's values, triggering increased support. The opportunities for SE teamwork also enhance the students' entrepreneurial creativity through which students can experience the processes and outcomes of idea cross-fertilization. In particular, educators should encourage the students' passion by encouraging unique ideas during the initial phase and then emphasize novel but flexible approaches to trigger entrepreneurial preparation for social innovation.

Comparison in terms of different academic majors

The main differences between Taiwanese students majoring in agricultural and those majoring in other subjects were in terms of the effects that resulted from prior experience, agreeableness, empathy, moral obligation, originality, and usefulness. First, compared with their counterparts, the SEI conviction of the agricultural majors was directly and considerably influenced by their prior experiences. This result might reflect the shared value of socioenvironmental sustainability in the agricultural field (Wang et al., 2016). This

value is intrinsically connected to SE that might enhance SEI through prior experience.

Second, the trait of agreeableness, signifying altruistic and sympathetic behavior toward others (Ariani, 2013), is a strong SEI predictor, particularly for action taking (Tran & Von Korflesch, 2016). Although the effects of agreeableness on SEI were influenced by the mediating effects of empathy and moral obligation, this shared characteristic of agricultural students exerted an impact on SEI, becoming another differentiator based on the academic majors.

Third, empathy positively predicted the entrepreneurial preparation of agricultural students, in contrast to its negative effect on their counterparts. Agricultural students are generally more proficient in socioenvironmental practices (Liang et al., 2017; Wang et al., 2016); this might allow them to practice empathy and augment their tendency to initiate and operate a social enterprise using means other than donations and voluntary engagements.

Fourth, moral obligation was inversely associated with the SEI preparation of agricultural students, while its negative effect reflected on the SEI conviction in their counterparts. As stated earlier, SE is driven by the dual goals of social benefit and trade revenues (Katre & Salipante, 2012), and the motives of social entrepreneurs may not be purely altruistic (Bacq et al., 2016). In particular, agricultural students might find it challenging to make a SE career decision.

Fifth, although the difference did not reach statistical significance, the effect of originality on SEI conviction for agricultural students was comparatively stronger than that for their counterparts. Agricultural students possessing a higher level of originality might become more self-confidence because of their novel ideas and unique approaches; this would further boost their SEI conviction.

Finally, in contrast to that in their counterparts, the effects of usefulness on SEI were negative in the agricultural majors, indicating that individuals who have market-driven business ideas that can attract the investors' attention would have a low level of SEI. This result can be explained by an understanding of the situation of the agricultural industry in Taiwan. There has been rapid economic development in the

previous six decades; therefore, the gross domestic product of Taiwan has grown significantly. However, during the same period, agricultural contribution has reduced substantially along with a decline and ageing of the agricultural population, a fall in the number of graduates from agricultural colleges, and the reduction in relevant job opportunities. Students who have market-driven business plans or valuable business models may revert to profit ventures, rather than adhere to a single SE resolution.

To summarize, the contrasting results for the different academic majors were caused by the different core knowledge and skills, traditions, shared values, and common characteristics of the particular academic major. To facilitate Taiwanese agricultural students' SEI, in addition to the aforementioned strategies, entrepreneurial educators should focus on creating various opportunities to enrich the students' SE experiences (e.g., course projects, internships, and service-learning activities). In particular, they should foster strong ties by providing emotional support and shared values during the initial phase and then emphasize humane and public welfare to trigger entrepreneurial actions.

Comparison in terms of different socioeconomic contexts

The main differences between Taiwanese and Hong Kong students were the effects that resulted from prior experience, neuroticism, empathy, moral obligation, originality, and usefulness. First, compared with that in their counterparts, the effects of prior experience on the SEI of Hong Kong students were not dominant. Hong Kong is a highly internationalized region where people have multiple opportunities and can engage in careers other than being social entrepreneurs (Ip et al., 2018). This may explain why prior experience with social problems is not the leading precursor of SEI for students in Hong Kong.

Second, high levels of neuroticism can hamper the SEI formation in students in Hong Kong. SE activities typically entail engagement with disadvantaged people and harsh societal problems and require long-term effort; therefore, these activities might not be suitable for neurotic individuals

(Liang, Peng, Yao, & Liang, 2015). This is particularly true in Hong Kong because most SEs in this region aim at helping the disadvantaged sections of the society, solving the problem of unemployment, and alleviating poverty (Chan, Kuan, & Wang, 2011).

Third, empathy positively predicted the entrepreneurial preparation of students in Hong Kong; this was contradictory to the negative impact on their counterparts. Compared with that in Taiwan, the development of SE is more advanced in Hong Kong. Most people in Hong Kong have recognized the value of SE and supported its practices, leading them to translate their empathy into SE actions.

Fourth, moral obligation was inversely associated with the SEI preparation of students in Hong Kong, while its negative effect appeared on the SEI conviction of their counterparts; however, this difference did not reach statistical significance. As stated earlier, the motives of social entrepreneurs may not be purely altruistic (Bacq et al., 2016). In particular, people in a highly urbanized region such as Hong Kong have multiple alternatives to fulfill their moral obligation, rather than engaging in SE initiatives.

Fifth, the effect of originality on SEI conviction for students in Hong Kong is comparatively stronger than that in their counterparts. This result may reflect the attitude of the people in Hong Kong people with respect to creativity as an inborn ability that is also associated with effort and logical thinking (Seng, Keung, & Cheng, 2008); this is closer to belief building than action taking. This result may also highlight a tendency of the people in Hong Kong to consider concrete interests and reality as constraints (Seng et al., 2008), particularly under the rule of China.

Finally, contradictory to that in their counterparts, the effect of usefulness on SEI conviction was negative. This result may be heavily influenced by the collective pragmatic tendency of the people of Hong Kong (Lee, 2010). China has the ultimate and institutionalized political power to determine the pace of development in Hong Kong (Seng et al., 2008). The struggle for SE in Hong Kong appears to be the struggle to define the harsh reality with pragmatic predisposition; this can hinder the contribution of high

usefulness. Therefore, individuals having market-driven SE ideas that can attract the investors' attention might still possess a low level of SEI.

In summary, the contrasting results for the different socioeconomic contexts were attributable to the sociocultural background, politico-economic development, career opportunities, collective tendency, common perspective, and the nature and status of SE in the context. To facilitate the SEI of students in Hong Kong, in addition to the common strategies, entrepreneurial educators in Hong Kong should emphasize the development of entrepreneurial creativity and carefully design effective coursework and placement experiences by using uncommon ideas and encouraging novel approaches. Entrepreneurial educators should also focus on collective benefits and on the creation of phased check-ins and celebrations.

Comparison in terms of different work experiences

The main differences between the media professionals and the university students, irrespective of the selected majors, in Taiwan were in the effects resulting from prior experience, extraversion, openness, empathy, moral obligation, perceived social support, originality, and usefulness. First, compared with that in their counterparts, the SEI preparation of Taiwanese media professionals was not directly affected by prior experience; rather, it was indirectly influenced by perceived social support and usefulness. This implies that the prior experience of media professionals requires certain and present motivators to trigger their intentional actions. Typically, media professionals require various social networks to accomplish their specialized tasks (Richards, 2013), explaining that perceived usefulness within a particular sociocultural context and wide variety of social support can facilitate their SEI formation.

Second, high levels of extraversion facilitate the SEI of media professionals in Taiwan, although its predictive validity was not strong. Extraverted people are energetic, enthusiastic, and enjoy being in large groups (Brandstätter, 2011); these are typical traits of media professionals and robust predictors in social networking. Extraversion also affected SEI through perceived social support and

usefulness, reflecting the specification in the profession of media work.

Third, high levels of openness facilitate the SEI of media professionals in Taiwan; however, its predictive validity was not strong and was significantly lower than that of their counterparts. The weak effects of openness on SEI were probably due to the intellectual curiosity and preference for variety associated with this trait (Ariani, 2013), a common tendency of media professionals. However, high levels of openness are easily distracted by novelty (Dougherty, Cheung, & Florea, 2008) and are unlikely to maintain high levels of intention in social innovations.

Fourth, unlike in their counterparts, the effects of both, empathy and moral obligation of media professionals were non-significant. With growing physical and professional maturity, the direct influences of empathy and moral obligation on the SEI of media professionals appeared to weaken. This might be because creating a new business is still considered a risky venture, and the media professionals may choose other channels to fulfill their empathy and moral obligation. Another possible reason could be that both, empathy and moral obligation of the media professionals may need certain motivators such as personal encounters and extrinsic sustenance for empathy and moral obligation to exert an influence on their SEI.

Fifth, the effect of perceived social support on SEI for media professionals is stronger than that on their counterparts. As per the nature of their work, media professionals are required to engage with diverse levels of societal systems; thus, their social capital and perceived support could be richer and stronger than those of the general population. The results reflected this; however, there was also an urgent demand of perceived social support for their SEI because of the precarious nature of contemporary media work in transitional economies and digital technology culture (Cohen, 2015).

Sixth, both dimensions of entrepreneurial creativity (i.e., originality and usefulness) positively influenced the SEI of media professionals in Taiwan; however, the effects of originality on SEI for media professionals were not as strong as those on their counterparts (although the

difference did not reach statistical significance), particularly regarding the aspect of preparation. Originality is the capability to generate thoughts, behaviors, or works that are considered novel or unique within a particular sociocultural context (Lin, Hsu, & Liang, 2014). This affirms previous studies that have reported that the voices of media professionals are traditionally constricted by norms, narratives, and precedents, leaving little room for creativity (Rothmann & Koch, 2014). Several scholars even indicated that creativity may have a negative effect if media professionals deviate far from the norms of media logic (Berglez, 2011) or misuse their creative potential to maintain problematic strategies (Rothmann & Koch, 2014), both of which are notions that may explain the weak predictive validity of originality on the SEI preparation in media professionals.

Finally, contradictory to that in their counterparts, the effect of usefulness on SEI preparation was comparatively strong for the media professionals. Usefulness is the capability to generate thoughts, behaviors, or works that are considered appropriate, effective, or valuable to the society at large (Lin et al., 2014). Media professionals possessing market-driven SE ideas are likely to maintain high levels of action-related SEI. In addition, the effect of usefulness was stronger than that of originality, implying that valuable ideas and effective approaches can be more beneficial to their SEI than unique ideas and unusual approaches. Therefore, the results acknowledge the contribution of usefulness to the SEI preparation in media professionals in Taiwan.

To summarize, the different results as per the differences in the professional experiences can be attributed to the varied work environments, professional specifications and conduct, the nature and requirements of their work, the norms and traditions of the respective fields, as well as physical and professional maturation. To facilitate the SEI of media professionals, in addition to the common strategies indicated earlier, entrepreneurial educators should emphasize the development of social support, as well as carefully designed enriching placement experiences of social problems by embedding market-driven ideas and encouraging flexible approaches. Entrepreneurial educators should also focus on

team building by collaborating with individuals or organizations with high levels of originality and usefulness to consolidate SE conviction during the initial stage for cross inspiration. Partners with high levels of usefulness should be invited to engage in the later stages of idea implementation.

Contributions and critical reflections

The results of the current study have made at least two important contributions. First, this study successfully advanced the SE theory by updating the SEI model through the inclusion of personality traits and entrepreneurial creativity as SEI precursors and the identification of entrepreneurial creativity as a mediator. Second, this study empirically compared and theoretically discussed the newly formed SEI model in terms of its applicability to different academic majors, socioeconomic contexts, and work experiences. Critically reflecting on the data reported in this article reveals the third set of contributions, which focuses on the further advancement of SEI theory. These contributions include concentrating on particular personality traits, substituting moral obligation with social responsibility, substituting self-efficacy with entrepreneurial creativity, and accounting for the nature of different social problems.

First, based on the findings, future SEI research may concentrate on the effects of the following four personality trait: openness, agreeableness, honesty-humility, and emotionality. Both, honesty-humility and emotionality are crucial dimensions of the HEXACO model (Ashton et al., 2004). The major facets of honesty-humility are sincerity, fairness, greed avoidance, and modesty, while those of emotionality are fearfulness, anxiety, dependence, and sentimentality (Ashton, Lee, & de Vries, 2014). Low levels of honesty-humility are associated with high levels of materialism and unethical business practices, while high levels of emotionality are associated with anxiety over stressful situations and a need for emotional support from others (Lee, Ashton, Morrison, Cordery, & Dunlop, 2008). These two personality dimensions are essential for prosocial behavior; however, these are yet to be tested for their potential effects on SEI.

Second, the effects of moral obligation on SEI are inconsistent between the three samples in the study by Hockerts (2017) and the four samples used in this study, which suggests a need to rethink the justification of moral judgement (Mair & Noboa, 2006) or moral obligation (Hockerts, 2017) as a proxy for social norms (Ajzen, 1991). Hockerts' proxy decision was based on the belief that moral obligation is positioned between the act of moral judgement and the formation of moral intent. However, the motives of social entrepreneurs could be 'impurely altruistic' (Bacq et al., 2016). Moreover, both moral judgement and moral obligation may not be linked to business contexts. This study thus proposes an alternative proxy, 'social responsibility', for future SEI research. Social responsibility pertains not only to organizations but also to individuals whose actions affect society. Thus, any entrepreneur or business has an obligation to balance profit-making activities with the benefit to the society (Frederick, 2006).

Third, based on these findings, 'social entrepreneurial creativity' is proposed as a substitute of self-efficacy for future SEI research. Mair and Noboa (2006) suggested that self-efficacy affects the perception of SE feasibility and enables the formation of corresponding behavioral intention. Hockerts (2017) redefined SE self-efficacy as 'a person's belief that individuals can contribute toward solving societal problems'. Although self-efficacy can play a critical role in how one approaches goals and challenges, this self-directed confidence is different from a capacity such as entrepreneurial creativity that can internally control behavior in discovering and exploiting business opportunities as well as help in establishing new ventures or reviving existing organizations. In addition, prior research has indicated that individuals tend to downgrade the power of self-efficacy as they mature physically and professionally and get better acquainted with business reality.

Finally, different types of social problems need distinct resources, capabilities, and strategies for resolution. Therefore, this recommends that the study of SEI should be conducted with a consideration of the nature of different social problems. Social problems can be distinguished into two broad types: problems of social organization and

problems of people deviance. The first type of problems is created by the method of organization of the community or the society, wherein its members refuse to accept situations as necessities or even inevitabilities (e.g., poverty, gender discrimination, population, and environmental imbalance). The second type of problems is related to the adjustment of people to the conventional ways of living; e.g., mental illness, alcoholism, drug addiction, crime, rape, prostitution, or vandalism, most of which are forbidden by the law (Mooney, Knox, & Schacht, 2014). Individuals are motivated to deal with different social problems owing to several reasons that may have a substantial impact on their SEI; this subject warrant further research.

Research limitations

This study expands on the findings of previous research, but it has certain limitations. First, the predictive validity of the revised model could have been stronger. Therefore, this study suggests that future SEI research should concentrate on personality traits, substitute moral obligation with social responsibility, replace self-efficacy with entrepreneurial creativity, and consider the nature of different social problems. Second, to strengthen the predictive validity, each variable should be reexamined in detail (e.g., cognitive vs. emotional empathy, and social capitals vs. social support). The intrinsic and extrinsic variables (work experiences, professional fields, and socioeconomic contexts) tested in the present study should also be considered. Third, the self-reported data in the present study may have been based. In this study, simple measures were adopted: excluding sensitive questions, a CFA was conducted to confirm the factor structure, and necessary feedback was offered after the survey to reduce bias. Therefore, future research should further refine the methodology used for obtaining more accurate and reliable results.

Closing remarks

Despite the limitations, the results provide valuable insights into the complex interrelationship among the SEI precursors. Without elaboration

on macro contexts and micro characteristics along with their intertwined connections, entrepreneurship research may not be warranted. A key approach is to continually evaluate the extent to which person-context interactions are influenced by the dynamics of global societal problems. Entrepreneurial theorists and practitioners must anticipate and identify the research gaps and developmental needs based on a comprehensive study of the emerging phenomenon. The findings of this study can be used as a reference for conducting further detailed research on this subject in the future.

Disclosure statement

No potential conflict of interest was reported by the authors.

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