Entrepreneurial Intention in Higher Vocational Education: An Empirically-Based Model With Implications for the Entrepreneurial Community

Zheng Li¹ and A. Y. M. Atiquil Islam¹,²

Abstract
This study explores how entrepreneurship education and government policies influence the entrepreneurial intention of students receiving higher vocational education. It employs an empirically-based model that tests the effects of perceived entrepreneurial education and perceived entrepreneurial policy on entrepreneurial self-efficacy and entrepreneurial intention. This study also analyzes the moderating effect of gender. The model was constructed based on the Theory of Reasoned Action. A total sample of 462 Chinese students from public and private higher vocational colleges were randomly selected to participate in this study, and their responses were analyzed using structural equation modeling. The results of the research model showed that perceived entrepreneurial education and policy had positive direct influences on entrepreneurial self-efficacy and intention, respectively. Subsequently, students’ entrepreneurial self-efficacy had a direct influence on their entrepreneurial intention. On the other hand, perceived entrepreneurial education and policy had multiple indirect influences on entrepreneurial intention mediated by entrepreneurial self-efficacy in higher vocational education. The findings also showed that gender did not significantly moderate the above direct and indirect causal relationships among the dimensions of the research model. Some implications for building better entrepreneurial community are provided. These include enabling students to obtain knowledge that is closely related to practice and to perceive the value of entrepreneurship education by creating participatory projects and teaching methods, issuing policies that college students care most about, proactively informing students about policy content in a clear and concise way, and fully considering the side effects of government policies and the compatibility among different kinds of policies.

Keywords
entrepreneurial intention, entrepreneurial education, entrepreneurial policy, entrepreneurial self-efficacy, higher vocational education, entrepreneurial community

Introduction
In view of the important role of entrepreneurship in national economic and social development, encouraging entrepreneurship has become an important policy in many countries (Henry et al., 2017). Self-employed workers (Barba-Sánchez & Atienza-Sahuquillo, 2017), college students (Arranz et al., 2017; Barba-Sánchez & Atienza-Sahuquillo, 2018) and other groups are an important part of the entrepreneurial community (Arranz et al., 2017), and many measures have been taken to encourage college students to start businesses in various fields (Arquisola & Muanar, 2019). As China’s industrial transformation and improvement has accelerated, bettering the quality of industrial development and the employment rate through entrepreneurship has become an important aspect of China’s sustainable development (Wang et al., 2016). The entrepreneurship of students receiving vocational education and training constitutes a very important part of the entrepreneurial groups in China and even other developing countries, which is of great significance in improving the employment rate, maintaining social stability and promoting knowledge production in middle and small sized enterprises (Bell & Liu, 2019). The outbreak of COVID-19 at the end of 2019 has caused severe

¹East China Normal University, Shanghai, China
²Shanghai International Studies University, China

Corresponding Author:
A. Y. M. Atiquil Islam, Department of Education Information Technology, East China Normal University, Room No. 729, 3663 North Zhongshan Road Campus, Shanghai 200062, China.
Email: atiq@foxmail.com

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unemployment worldwide (Atkinson, 2020). Encouraging students receiving vocational education to start their own businesses will not only relieve the pressure of employment, but also foster the growth of small and medium-sized businesses and the innovation of production technology in various countries.

Higher vocational education (HVE) is a type of higher education, but it is quite different from academic higher education (Webb et al., 2017). It is positioned as a provider of highly skilled workers for the labor market (Nägele et al., 2018) rooted in the local area which offering bachelor’s or associate degrees (Jørgensen, 2017). Students receiving HVE accounted for 48.6% of all Chinese college students in 2018 (Ministry of Education, 2019), and higher vocational colleges are the main providers of HVE. A survey showed that almost 59% of HVE students in China say that they are willing to start a business. This is a much higher percentage than those who receive academic higher education (Ma & Zhao, 2012; Wang et al., 2016). However, only 15.5% of them turned their entrepreneurial intention into entrepreneurial action, and overall resistance to market risk was weak (Shanghai Academy of Educational Science, 2019). In addition, despite the government’s recent attempts to encourage entrepreneurship education in higher education institutions, only 61.11% of all higher vocational colleges offer relevant courses (Ma, 2018). Entrepreneurship education courses in some regions are not included in compulsory courses, and entrepreneurship education’s effects on students’ creativity is not significant (Wang et al., 2016).

Entrepreneurial intention is considered to be the variable which most directly predicts whether an individual is willing to start a business (Ghosh, 2017; Saeed et al., 2015). Previous studies have identified the individual and external factors that influence college students’ entrepreneurship intention such as demographic characteristics (Santos et al., 2016), the social status of parents and grandparents (Rätty et al., 2016), role models (Bosma et al., 2012), entrepreneurial self-efficacy (McGee et al., 2009), self-realization (Popescu et al., 2016), organizational culture and norms (Louis et al., 1989), and university quality (Çera et al., 2018). While empirical research has suggested that self-efficacy is the strongest individual factor, school entrepreneurship education, and government institutional forces are the main external factors that affect students’ entrepreneurial intention (Nabi et al., 2017; Saeed et al., 2015). Students in the vocational education system often have some disadvantages in social capital, family background and study habits (Abrassart & Wolter, 2020). They defined their career direction in high school, participated in entrepreneurship education to a certain extent, and developed a relationship with the job market earlier than students in the academically oriented general education system. Therefore, the individual and external factors may have different effects on students receiving HVE (Lavelle, 2021). However, although existing research clarified the influence of these factors, it ignored several questions, such as how external factors affect individual entrepreneurial intention and what the relationship among external and internal factors are (Hsu et al., 2019; Saeed et al., 2015). In addition, many studies treated the effects of entrepreneurship education and government policies on entrepreneurship intention independently (Piperopoulos & Dimov, 2015) without reflecting on the possible effects of their potential interrelations and interdependency (Saeed et al., 2015).

According to Ireland and Webb (2007), only one viewpoint in behavioral research provides an incomplete description of the phenomenon. University and government support may have an interactive effect on the entrepreneurial intention of students, which calls for a multilevel and multi-perspective approach in study.

The goal of the present research is twofold. Firstly, it aims to assess the extent to which HVE students perceived external support including perceived entrepreneurial education and perceived entrepreneurial policy. Secondly, it aims to ascertain whether it affects their entrepreneurial self-efficacy and entrepreneurial intention. Based on Ajzen’s (1991) Theory of Planned Behavior, entrepreneurial self-efficacy was introduced as an intermediary variable to better explain the impact mechanism of entrepreneurial education and government policies on the entrepreneurial intention of HVE students. As a conceptual product of “perceived feasibility” (Chen et al., 1998), strong self-efficacy is believed to move individuals toward certain psychological tendencies, thus contributing to the formation of certain behaviors. The results will also be compared with students who receive academic higher education. Some Chinese literature will also be summarized.

Literature Review and Research Hypotheses

Drawing from the perspectives of information processing and expected value theory, the Theory of Planned Behavior (TPB) is a theory that explains the general decision-making process that leads to individuals’ behavior (Ajzen, 1991; Ajzen & Albarracin, 2007). Researchers have successfully applied the theory to a number of behavior fields, and TPB has been proven to have significant explanatory and predictive power of behavior (Steinmetz et al., 2016). Perceived Behavioral Control, introduced by Ajzen (1985) into the Theory of Reasoned Action (TRA), is the core concept in TPB which reflects an individual’s past experiences and expected obstacles. The more resources and opportunities that an individual thinks he has, and the fewer impediments he expects, the more control he will feel over his behavior. According to Bagozzi et al. (1989) intention has been shown to be the most accurate predictor of planned actions, especially behavior that is rare and hard to observe (Bird, 1988). Since entrepreneurship fits this type of behavior, the TPB model is suitable to explain an individual’s intention to start one’s own business (Saeed et al., 2015).

Based on Ajzen (1991)’s theory, Saeed et al. (2015) built a model to predict whether university support enhanced students’ entrepreneurial intention. This model emphasized the influence of perceived educational support
and perceived institutional support on entrepreneurial intention via the mediating role of entrepreneurial self-efficacy. However, this model does not address the direct effect of perceived educational support and perceived institutional support on entrepreneurial intention. Since many studies have shown that entrepreneurial education and institutional factors have significant effects on entrepreneurial intention (Bae et al., 2014; Ghosh, 2017; Lin & Si, 2014), the effects of perceived entrepreneurial education and policy on entrepreneurial intention should be considered and tested using an empirical model. Therefore, based on the entrepreneurship environment in Chinese vocational colleges and the TPB model, this study focuses on the influence of perceived entrepreneurial education (PEE) and perceived entrepreneurial policy (PEP) of HVE students on their entrepreneurial intention (EI). It also explores the mediating role of entrepreneurial self-efficacy (ESE) and its degree (Figure 1).

**Perceived external support and entrepreneurial intention.** Intentionality is “a state of mind directing a person’s attentions (and therefore experience and action) toward a specific object (goal) or a path in order to achieve something (means)” (Bird, 1988). Here, entrepreneurial intention denotes an individual state of mind or behavior related to starting and maintaining a business (Crespo et al., 2018). The more outside support students get, the more likely they will be to intend to choose entrepreneurship as their career path in the future (Chen & He, 2011). As a formal education provider, universities can provide various forms of assistance for students’ entrepreneurship, among which the most effective and direct way is entrepreneurship education (Foss & Gibson, 2015; Guerrero et al., 2016). The term “entrepreneurship education” has become ambiguous and imprecise due to its wide use and its diverse content and implementation background (Piperopoulos & Dimov, 2015). The results regarding the relationship between entrepreneurship education and entrepreneurial intention were contradictory. A study of Chinese vocational college students found a significant positive relationship between entrepreneurship education and entrepreneurial intention (Lavelle, 2021). Some studies focusing on other groups also showed significant positive effects (e.g. Karimi et al., 2016; Vodă & Florea, 2019). However, a meta-analysis including 73 studies (Bae et al., 2014) found a poor association between entrepreneurship education and intention. Some studies did not find any positive effects between the two variables (Lavelle, 2018). Several factors such as curriculum, understanding of core concepts, and features of targeted groups may mediate the influence of entrepreneurship education on entrepreneurial intentions (Byabashaja & Katono, 2011; Kirby, 2006). Barba-Sánchez and Atienza-Sahuquillo (2018) found that entrepreneurship education moderates the relationship between students’ entrepreneurial motivations and their entrepreneurial intention. Against this background, we hypothesize that:

**H1a:** Chinese HVE students’ perceived entrepreneurial education will have a direct influence on their entrepreneurial intention.

Public policies that are part of an institution can be regarded as “rules of the game” (North, 1990). Institutions structure policymaking in ways that favor some outcomes over others (Pierson, 1993). Entrepreneurial policy reflects the willingness, direction and focus of the government to encourage entrepreneurship. Such policies have been used in both developed and developing countries to facilitate entrepreneurship in the general population (Sharma & Madan, 2014). Some studies have shown that various entrepreneurial policies have significantly improved entrepreneurial intentions. Some such policies are the promotion of a successful entrepreneurial model (Lin & Si, 2014), stringent labor regulations (Ghosh, 2017), and public basic education and training policies (Teixeira et al., 2018). Meanwhile, the effects of policies may be mediated by factors such as attitudes, social norms and perceived behavioral control (Aragon-Sanchez et al., 2017), institutional qualities (Ghosh, 2017), and public welfare policies (Acs et al., 2016). Therefore, we hypothesize that:

**H1b:** Chinese HVE students’ perceived entrepreneurial policy will have a direct influence on their entrepreneurial intention.

**Perceived external support and entrepreneurial self-efficacy.** Self-efficacy, which is grounded in social cognitive theory, refers to a person’s belief that he or she can perform a desired behavior. This theory is firmly based on an individual’s self-awareness of his or her abilities (Bandura, 1997). Bandura (2012) believes that self-efficacy is the most important factor that directly or indirectly influences behavior through its influence on goal setting, result expectation, etc. Boyd and Vozikis (1994) define entrepreneurial self-efficacy as “a variable in determining both the strength of entrepreneurial intentions and the likelihood that those
intentions will result in entrepreneurial actions” (p. 66). It is a construct of whether a person believes that he or she can successfully start and keep a business. Chen et al. (1998) deconstructed entrepreneurial self-efficacy into five parts: marketing, innovation, management, risk-taking, and financial control.

Self-efficacy has been widely used as a core concept in many studies to explain individuals’ entrepreneurial behavior. Previous studies have discovered several factors that influence individual entrepreneurial self-efficacy, including entrepreneurial education and entrepreneurial policy. Entrepreneurial education mainly influences the individual’s entrepreneurial self-efficacy in the form of improving human capital (Malebana & Swanepoel, 2019), and this effect may vary depending on gender (Nowinski et al., 2019) or course content (Piperopoulos & Dimov, 2015). Entrepreneurial policy primarily influences the individual’s entrepreneurial self-efficacy in the forms of improving individual financial capital (Acs et al., 2016), breaking down institutional barriers (Kazumi & Kawai, 2017) and providing exemplary entrepreneurial behavior and patterns (Lin & Si, 2014). Lim et al. (2010) emphasized the importance of formal institutions (such as legal frameworks) for entrepreneurship, as they affect entrepreneurs’ basic perceptions, aspirations, confidence and vision. The formation of a formal institutional structure aimed at providing public funds, training and consultation helps entrepreneurs to fight against the uncertainty inherent to entrepreneurship. Although many studies have shown that entrepreneurial education and policy improve entrepreneurial self-efficacy in general, this effect still depends on other factors (Chen et al., 1998). Therefore, we hypothesize that:

**H2a**: Chinese HVE students’ perceived entrepreneurial education will have a direct influence on their entrepreneurial self-efficacy.

**H2b**: Chinese HVE students’ perceived entrepreneurial policy will have a direct influence on their entrepreneurial self-efficacy.

**Entrepreneurial self-efficacy and entrepreneurial intention.** Entrepreneurial self-efficacy has been proven to be a moderate or significant predictor of entrepreneurial intention (Piperopoulos & Dimov, 2015), especially for university and college students (Chen et al., 1998). This is because their Entrepreneurial self-efficacy can affect their motivation to participate in entrepreneurship, which to some extent reflects their maturity in preparing for entrepreneurship (Bandura, 2012). Hsu et al. (2019) introduced “perceived person-entrepreneurship fit” and showed that it moderates the association between entrepreneurial self-efficacy and intention. That is, a lower level of fit or no fit results in lower entrepreneurial intention even if there is a high level of entrepreneurial self-efficacy. Botha and Taljaard (2019) even identified a moderate interrelationship between entrepreneurial self-efficacy and intention. This called for policymakers and educators to pay more attention to the effect of policies as well as curriculum design on entrepreneurial self-efficacy. It also called for their attention as to how policies can promote a mutually reinforcing relationship between entrepreneurial self-efficacy and entrepreneurial intention. Pihie and Bagheri (2013) concluded that students’ self-regulation partly mediates the association between entrepreneurial self-efficacy and their intention. Because of the strong prediction effect of entrepreneurial self-efficacy on entrepreneurial intention, the mediating effect of entrepreneurial self-efficacy has also been verified in many studies. Jiang et al. (2017), Malebana and Swanepoel (2019), and Piperopoulos and Dimov (2015) revealed that significant relationships exist between entrepreneurial education and intention, while self-efficacy was found to partially mediate them. Liguori et al. (2018) found that entrepreneurial self-efficacy mediates the individual factors (entrepreneurial outcome expectations) and individual factors (entrepreneurial intention relationships). Hou et al. (2019) reported that entrepreneurial self-efficacy plays an important mediating role between entrepreneurial intention and entrepreneurial passion and role models. Other mediating effects of entrepreneurial self-efficacy were found between self-perceived creativity and entrepreneurial intention (Laguia et al., 2019), university environment and entrepreneurial intention (Islam, 2019), and policy implementation and entrepreneurial intention (Yang, 2016). Therefore, we hypothesize that:

**H3**: Chinese HVE students’ entrepreneurial self-efficacy will have a direct influence on their entrepreneurial intention.

**H4a**: Chinese HVE students’ perceived entrepreneurial education will have an indirect influence on entrepreneurial intention mediated by their entrepreneurial self-efficacy.

**H4b**: Chinese HVE students’ perceived entrepreneurial policy will have an indirect influence on entrepreneurial intention mediated by their entrepreneurial self-efficacy.

**The moderating effect of gender.** Gender was considered to be an important moderating factor between entrepreneurial intention and other factors. Many studies have proven gender’s moderating effect between perceived control of behavior (Soria et al., 2016), entrepreneurial education (Westhead & Solesvik, 2016), self-efficacy and risk propensity (Yu & Chen, 2016), subjective norms (Bagheri & Lope Pihie, 2014), goal orientation (Botha & Bignotti, 2017), the mediating effect of perceived opportunity (Tsai et al., 2016) and entrepreneurial intention. This moderating effect may be illustrated by gender stereotypes (Westhead & Solesvik, 2016), cultural differences (Soria et al., 2016) and other reasons. Therefore, we hypothesize that:

**H5**: Gender is a moderating variable of the research model.
Methodology

Participants. The present study computed the sampling adequacy based on Hair et al.’s (2010) suggestion for the sample size that each indicator in the survey instrument should be answered by at least five respondents. However, in our case, altogether 38 items were completed by 500 respondents, which is quite a bit higher than the recommended sample size. Therefore, we assume that the sample size for this study could be considered representative of a larger population. A total of 500 questionnaires were distributed and received, with a response rate of 100%. However, the present study excluded 38 incomplete responses. A total sample of 462 Chinese students from public (n = 352, 76.19%) and private (n = 110, 23.81%) higher vocational colleges were selected to participate in this study. Convenient sampling technique was used for the sample selection. This study selected five higher vocational colleges from five provinces of China. These colleges are located in the eastern, central and western regions of China and are enrolled in a project led by the Institute of Vocational & Adult Education at East China Normal University (ECNU). As such, the researchers were permitted to obtain research data from these colleges. In the selected colleges, we chose randomly layer by layer through “major—class—students.” The data confidentiality clause of this study was clarified, and each participant was confirmed before completing the questionnaire. According to the college regulations, the questionnaires were distributed among students through administrative departments in these colleges. The students were asked to indicate their agreement with each item on a 5-point Likert scale with response options ranging from 1 (strongly disagree) to 5 (strongly agree). The students’ details are presented in Table 1.

| Participants Categories | Frequency | Percentage |
|-------------------------|-----------|------------|
| Gender Male             | 265       | 57.36      |
| Female                  | 197       | 42.64      |
| College Public          | 352       | 76.19      |
| Private                 | 110       | 23.81      |
| Grade Freshman year     | 166       | 35.93      |
| Sophomore year          | 190       | 41.13      |
| Junior year             | 106       | 22.94      |
| Major Finance and business | 99     | 21.43      |
| Electronic information  | 80        | 17.32      |
| Equipment manufacturing | 65        | 14.07      |
| Civil construction      | 44        | 9.52       |
| Art and culture         | 44        | 9.52       |
| Tourism                 | 40        | 8.66       |
| Agriculture, forestry, animal husbandry and fishery | 31 | 6.71 |
| Medicine and health     | 19        | 4.11       |
| Resources and environment | 16    | 3.46       |
| Energy power and materials | 12  | 2.60       |
| Light and textile industry | 12    | 2.60       |
| Region Shanghai city (Eastern China) | 112 | 24.24 |
| Jiangsu province (Eastern China) | 142 | 30.74 |
| Anhui province (Central China) | 46 | 9.96 |
| Sichuan province (Western China) | 78    | 16.88     |
| Shandong province (Eastern China) | 84 | 18.18 |
| Entrepreneurship experience Yes | 125 | 27.06 |
| No                      | 337       | 72.94      |
| Entrepreneurship education Entrepreneurship course | 412 | 89.18 |
| Entrepreneurship project | 234       | 50.65      |
| Entrepreneurship internship | 159 | 64.42 |

Table 1. Participants' Detailed Information.
the western part (16.88%) of China. The majority (72.94%) of participants had no entrepreneurship experience, and most of them received different forms of entrepreneurial education such as an entrepreneurship course (89.18%), an entrepreneurship project (50.65%), and an entrepreneurship internship (64.42%).

**Measures.** We used validated questionnaires to measure the four constructs appearing in the structural model: entrepreneurial self-efficacy, entrepreneurial intention, perceived entrepreneurial policy, and perceived entrepreneurial education. We measured students’ entrepreneurial self-efficacy by adapting a scale from Chen et al. (1998). Participants were asked to rate their skill level in six aspects of entrepreneurship, namely, social interaction, risk taking, management, marketing, financial control, and innovation. A sample item is “I have creative innovation ability relating to entrepreneurship.” Students’ entrepreneurial intention was measured by four items adopted from Qi and Liu (2011) to identify whether the participant would possibly start a business in the future. A sample item is “I think it’s possible for me to start a business within five years after graduation.” In order to assess students’ perceived entrepreneurial education and policy, items in “Perceived Entrepreneurial Support” and “Perceived Institutional Support” from a scale by Saeed et al. (2015) were used. Two examples of the items are “Entrepreneurship courses offered by the college will help me to start my own business,” “The government’s tax relief policy will support my choice of entrepreneurship.” As these questions are all in English, three researchers with overseas research experience participated in the translation of the questions in order to ensure the accuracy of the translation. Some irrelevant information, such as place names, was deleted or changed. All the constructs had values of Cronbach’s alpha greater than .70.

**Findings**

For this study, SPSS 21.0 was used to test the validity and reliability of the questionnaire. Specifically, Exploratory Factor Analysis (EFA) was employed to establish the validity of the instrument, which consisted of 18 items for measuring perceived entrepreneurial education (PEE), perceived entrepreneurial policy (PEP), entrepreneurial self-efficacy (ESE), and entrepreneurial intention (EI). However, the initial results of EFA showed that the rotated component matrix identified a single cross-loaded item (PEP4). After excluding this item from the final analysis, the results yielded a four-component solution, as predicted, which accounted for 81.975% of the total variance. The factor loadings for 17 valid items of four components ranged from 0.730 to 0.905, and the KMO was 0.933 (Bartlett’s Test of Sphericity: \( p = 0.000 \)). These four components (PEE, PEP, ESE, and EI) exhibited good reliability scores in terms of internal consistency (\( \alpha = 0.946, 0.920, 0.952, \) and 0.890, respectively). Above all, the findings confirmed that the four-component solution is adequate.

Figure 2 presents the scales used to measure the main variables of the research model. A Confirmatory factor analysis (CFA) was executed by AMOS 24.0 to measure the validity of the measurement model and the predicted factor structure for the components. Structural equation modeling (SEM) was applied for the CFA and to estimate the structural model. The four-factor measurement model of perceived entrepreneurial education (PEE), perceived entrepreneurial policy (PEP), entrepreneurial self-efficacy (ESE), and entrepreneurial intention (EI) adequately fitted the data, with \( \chi^2 = 212.187; df = 113; p = 0.000; \) RMSEA = .044; CFI = .986; and TLI = .984 (Hu & Bentler, 1999). Subsequently, the correlation matrix indicates no multicollinearity among the exogenous, endogenous and mediating variables as none of coefficients exceeded the cutoff point of .85 (Fornell & Larcker, 1981). The indicators with a loading lower than the 0.50 threshold were excluded (Hair et al., 2010). Convergent validity of each dimension was assessed by composite reliability (CR > .70) and average variance extracted (AVE > .50). The discriminant validity of the components was also measured through the intercorrelations and square root of AVE as presented in Table 2. The data showed that the items in the questionnaire have high reliability and validity: six items measuring ESE had high factor loadings to the dimension (>0.82), and they had acceptable convergent validity (AVE = .768), discriminant validity (0.876 > 0.605) and high composite reliability (CR = .952). Four indicators that measured HVE learners’ EI showed that items had high factor loadings (>0.76), convergent validity (AVE = .676), discriminant validity (0.822 > 0.414) and high composite reliability (CR = .893).

Convergent validity estimated by AVE for the items on PEE and PEP were .816 and .798, respectively. The two constructs also had an acceptable discriminant validity (0.903 > 0.414) and high composite reliability (CR = .947 and .798).

Table 3 reports all the items of the four-factor measurement model including its loadings, mean (\( M \)) and standard deviation (\( SD \)).

**Evaluation of the structural model.** Figure 3 shows the full structural model for entrepreneurial self-efficacy (ESE), entrepreneurial intention (EI), perceived entrepreneurial education (PEE), and perceived entrepreneurial policy (PEP) with standardized regression weights. This study’s structural model is used as the research model. The index values found for the relationship among four constructs revealed that the model fitted the data well, with \( \chi^2 = 306.171; df = 114; p = 0.000; \) RMSEA = .060; CFI = .974; and TLI = .968.

According to Figure 3, all the associations among the variables went in the expected directions and supported the hypothesized causal structure. The direct and indirect effects of the hypothesized paths were estimated with a 95% confidence interval. Our first hypothesis, \( H1a \), was supported;
that is, Chinese students’ perceived entrepreneurial education had a significant direct influence on their entrepreneurial intention ($\beta = .11, p = .019, \text{CR} = 2.348$) in higher vocational education. The results showed a highly significant direct influence of perceived entrepreneurial education ($\beta = .32, p = .000, \text{CR} = 7.549$) and perceived entrepreneurial policy ($\beta = .53, p = .000, \text{CR} = 11.721$) on entrepreneurial self-efficacy, thus supporting $H2a$ and $H2b$. The results also exhibited a highly significant direct influence of perceived entrepreneurial policy ($\beta = .27, p = .000, \text{CR} = 5.120$) and entrepreneurial self-efficacy ($\beta = .38, p = .000, \text{CR} = 6.581$) on entrepreneurial intention, which supports for $H1b$ and $H3$. Finally, the Sobel test (Sobel, 1982) confirmed that Chinese students’ perceived entrepreneurial education (Chi-square, $\chi^2 = 4.921, p = .000, \beta = .119 \geq .080$) and policy (Chi-square, $\chi^2 = 5.715, p = .000, \beta = .202 \geq .080$) had significant indirect influence.
Table 3. Items and Summary of the Results of CFA.

| Constructs | Items                                                                                           | Loadings | M  | SD  |
|------------|------------------------------------------------------------------------------------------------|----------|----|-----|
| PEE        | PEE1 Entrepreneurship courses offered by the college will help me to start my own business.    | 0.92     | 3.32| 0.797|
|            | PEE2 All kinds of entrepreneurship lectures held by the college will help me to start my own business. | 0.94     | 3.32| 0.828|
|            | PEE3 The entrepreneurial practice and training opportunities provided by the college will help me to start my own business. | 0.91     | 3.34| 0.808|
|            | PEE4 The college’s entrepreneurial community will help me to start my own business.              | 0.84     | 3.33| 0.829|
| PEP        | PEP1 The government’s tax relief policy will support my choice of entrepreneurship.               | 0.84     | 3.63| 0.806|
|            | PEP2 The government’s entrepreneurship training and incubation policies will support my choice of entrepreneurship. | 0.94     | 3.58| 0.802|
|            | PEP3 The government’s loan discount policy will support my choice of entrepreneurship.            | 0.90     | 3.61| 0.774|
| ESE        | ESE1 I have the ability to seize market opportunities.                                           | 0.82     | 3.41| 0.745|
|            | ESE2 I have creative innovation ability relating to entrepreneurship.                             | 0.89     | 3.45| 0.734|
|            | ESE3 I have team management ability relating to entrepreneurship.                                 | 0.88     | 3.52| 0.770|
|            | ESE4 I have the ability to take entrepreneurial risks.                                            | 0.89     | 3.49| 0.773|
|            | ESE5 I have entrepreneurial financial control skills.                                             | 0.88     | 3.45| 0.745|
|            | ESE6 I have social skills for entrepreneurship.                                                   | 0.89     | 3.52| 0.764|
| EI         | EI1 I think I will start a business in the future.                                               | 0.81     | 3.53| 0.883|
|            | EI2 I think it’s possible for me to start a business within five years after graduation.         | 0.81     | 3.76| 0.856|
|            | EI3 If I have the chance and can make a decision freely, I will choose to start a business.       | 0.90     | 3.78| 0.829|
|            | EI4 If I encounter practical difficulties, I will still choose to start a business.               | 0.76     | 3.52| 0.865|

Figure 3. Research model.
influences on entrepreneurial intention mediated by their entrepreneurial self-efficacy. The results of these indirect effects supported our next hypotheses (H4a and H4b).

The moderating effect of gender in higher vocational education. This research cross-validated the research model to determine the gender differences using two groups of samples: Group 1 consisted of male students (n=265) while Group 2 consisted of female students (n=197). The results of cross-validation showed that the research model adequately fitted both groups of data for male ($\chi^2 = 306.054; df = 114; p = .000; RMSEA = .080; CFI = .955$ and TLI = .946) and female ($\chi^2 = 260.423; df = 114; p = .000; RMSEA = .081; CFI = .953$ and TLI = .944) students. These fit statistics of cross-validation is supported by statisticians (Byrne, 2010; MacCallum et al., 1996). All the proposed hypotheses for this study were also valid. However, there were minor differences between male and female students in terms of the loadings and variances. To determine whether these differences moderate the causal relationships among exogenous (perceived entrepreneurial education and perceived entrepreneurial policy), endogenous (entrepreneurial intention) and mediating (entrepreneurial self-efficacy) variables of the research model, we conducted invariance measurements such as configural invariance and metric invariance analyses. To run the configural invariance test, we grouped both samples for male and female students and managed the groups using different names like model 1 for male and model 2 for female students. Then, we compared unconstrained model 1 and model 2 using unstandardized estimates to gain their equal chi-square and degree of freedom (e.g., $\chi^2 = 566.502, df = 228$). Afterward, to perform metric invariance analyses, we constrained all the paths of the research model and compared model 1 and model 2 using unstandardized estimates to obtain their equal chi-square and degree of freedom (e.g., $\chi^2 = 569.774, df = 233$). Finally, we compared the values of chi-square and degree of freedom for unconstrained and constrained models to compute their critical value and chi-squared change to justify whether gender is a moderating variable. Table 4 indicates that the value of chi-squared change (3.272) is smaller than the critical value (11.070, $p > .05$). This implies that gender is not a moderating variable of the research model and there is no statistically significant difference between Chinese male and female HVE students. Thus, the last hypothesis (H5) was not supported. All the results of the hypotheses are presented in Table 5.

### Table 4. The Results of Unconstrained and Constrained Models.

| Models                           | Chi-squared | df  | Critical value | Chi-squared change |
|----------------------------------|-------------|-----|----------------|--------------------|
| Gender invariant of the research model | 566.502     | 228 | 11.070         | 3.272              |
| Unconstrained                    | 569.774     | 233 | (p > .05)      |                    |
| Constrained                      |             | 5   |                |                    |

### Table 5. The Results of Hypotheses Testing.

| Hypotheses | Results       |
|------------|---------------|
| H1a        | PEE $\rightarrow$ EI | Supported |
| H1b        | PEP $\rightarrow$ EI | Supported |
| H2a        | PEE $\rightarrow$ ESE | Supported |
| H2b        | PEP $\rightarrow$ ESE | Supported |
| H3         | ESE $\rightarrow$ EE | Supported |
| H4a        | PEE $\rightarrow$ ESE $\rightarrow$ EI | Supported |
| H4b        | PEP $\rightarrow$ ESE $\rightarrow$ EI | Supported |
| H5         | Moderating effect of Gender | Rejected |

### Discussion

Current research shows that entrepreneurship is one of the basic driving forces of economic development, providing a considerable proportion of employment opportunities and promoting technological innovation and productivity improvement (Feki & Mnif, 2016). However, the proportion of Chinese college students participating in entrepreneurship is less than 1% of the total number of graduates. Moreover, the success rate of entrepreneurship is relatively low, only 4% in Zhejiang Province and only 1% in Guangdong Province (Guo & Chu, 2013). This phenomenon is caused not only by individual factors such as concept and family environment, but also by external supporting factors such as entrepreneurship education and entrepreneurship policy (Zhao et al., 2020). As China’s industrial transformation and improvement has accelerated, bettering the quality of industrial development and the employment rate through entrepreneurship has become an important aspect of China’s sustainable development (Wang et al., 2016). The entrepreneurship of HVE students constitutes a very important part of the entrepreneurial groups in China and even in other developing countries. This is of great significance to improving the employment rate and maintaining social stability (Bell & Liu, 2019). Previous studies have mainly proven that entrepreneurship education and entrepreneurship policy have a positive impact on entrepreneurial intention (Chen & He, 2011; Piperopoulos & Dimov, 2015; Sharma & Madan, 2014), and that entrepreneurial self-efficacy often plays a mediating role (Jiang et al., 2017; Malebana & Swanepoel, 2019). Based on these findings, many countries regard entrepreneurship education and entrepreneurship policy as an important carrier to encourage local college students to start their own businesses (Kazumi & Kawai, 2017; Sharma & Madan, 2014; Teixeira et al., 2018). However, it is a systematic project to encourage people to start their own businesses. Only when multiple parties including the government, colleges, communities and enterprises work together to successfully implement policies and measures to build an entrepreneurial community can we better stimulate people’s intention to start their own businesses.

This study found that among HVE students, perceived entrepreneurial education has a significant direct effect on
entrepreneurial intention, which also has indirect influence on intention mediated by their entrepreneurial self-efficacy. This is consistent with Byabashaija and Katono’s (2011) and Kirby’s (2006) studies on students in academic higher education institutions. As entrepreneurship is a high-risk activity, it requires a large amount of investment in the early stages and involves unpredictable market risks. Therefore, entrepreneurship education in higher vocational colleges should not only enhance students’ entrepreneurial intention by teaching, but also enhance students’ entrepreneurial self-efficacy through giving them opportunities to put their knowledge into practice. Several studies on Chinese HVE students uncovered defects of entrepreneurship education in content design, course hours, textbook use, and activity design (Su, 2015; Wang et al., 2016). The results of this study suggest that the root of these defects lies in the failure to effectively improve the entrepreneurial self-efficacy of students by the current model of entrepreneurial education. At present, students cannot develop the confidence, motivation and behaviors needed for successful entrepreneurship under the current model of entrepreneurial education (Bandura, 2012). To improve the effects of entrepreneurial education for HVE students, teachers could involve learners in multiple activities like business planning, role modeling and case investigation (Chen et al., 1998; Guerrero et al., 2016). They could also design entrepreneurial projects closer to HVE students’ professional background and level and compile textbooks based on their entrepreneurial competency, considering the multi-faceted and sequential nature of entrepreneurial tasks (Lavelle, 2021; McGee et al., 2009). What these measures have in common is that they enable students to obtain knowledge that is closely related to practice from entrepreneurship education and to perceive the value of entrepreneurship education, rather than merely having theoretical knowledge.

In addition, compared with academic higher education institutions, higher vocational education institutions have unique “career oriented” advantages in entrepreneurship education. Most HVE students have a certain professional orientation and vocational competence (Lavelle, 2021), especially operation skills such as cooking, marketing, and repair. These skills are often important capital for students’ entrepreneurship. In addition, the school has a complete training ground and a large number of cooperative enterprises which can provide students with training resources and market resources. Guerrero et al. (2016) concluded that nascent entrepreneurs appear to follow an “inspiration, then perspiration” sequence in entrepreneurial self-efficacy development. Therefore, an important goal of entrepreneurship education is to enable students to comprehensively evaluate their strengths and weaknesses in a certain field (usually their major) and the external environment. This will enable them to form confidence in their ability to succeed, thus spurring them on to obtain solid professional skills, generate good creative ideas, develop sensitive market judgment, and implement clear entrepreneurial processes.

This study also found that perceived entrepreneurial policy has a positive direct effect on entrepreneurial intention, and entrepreneurial self-efficacy has a mediating effect. This is consistent with Yang’s (2016) conclusion. That is to say, the government should give full consideration to the effect of improving students’ entrepreneurial self-efficacy when designing entrepreneurial preferential policies for college students. Some studies showed that the existing preferential policies have too many restrictions. As such, it is difficult for them to significantly impact the improvement of college students’ entrepreneurial intention (Su, 2015; Zhao et al., 2020). In the future, the government may consider issuing support policies such as provision of free space, the introduction of venture angel investment, the improvement of equity capital access, and the reduction of loan interest rates in order to promote perceived ease of use of policies (Hart, 2003). Also, the government should pay more attention to strengthening the publicity of the policies, and proactively inform students in a clear and concise way instead of merely publishing arcane policy texts on government websites.

Interestingly, this study found that gender did not significantly moderate the direct and indirect causal relationships among the dimensions of the research model. This means that there is no significant difference between male and female HVE students. This is contrary to the findings of most studies on students in academic higher education institutes, which showed significant gender differences regarding the effects of perceived entrepreneurial education, policy, self-efficacy, and intention (Molino et al., 2018; Santos et al., 2016). Molino et al. (2018) believed that perceived behavioral control and personal attitude could explain gender differences. However, these two factors may not be applicable in Chinese higher vocational colleges. As the main purpose of higher vocational colleges is to cultivate skilled workers for industries, the difficulty of their entrepreneurial projects is generally low. Moreover, since the students receiving HVE have disadvantages in social capital (Abrassart & Wolter, 2020), their main motivation for starting a business is to secure their livelihood. Therefore, it is unlikely that male and female students would have fundamental differences in their attitudes toward entrepreneurship.

On the other hand, due to the low difficulty of entrepreneurial projects, the threshold of entrepreneurship for students in higher vocational colleges is relatively low, which alleviates the gender differences in perceived behavioral control to some extent. In addition, some provinces and cities in China allow students from higher vocational colleges who have won a high-level entrepreneurship award to study in undergraduate colleges, and the entrepreneurship award is also an important reference for scholarships. This may also motivate more female students to participate in the entrepreneurial process to some extent, thus reducing gender differences in entrepreneurial intention and self-efficacy. Therefore, the side effects of government policies, as well as the compatibility among different kinds of policies, need to be fully considered.
Conclusion

In sum, these results showed relationships among perceived entrepreneurial education, perceived entrepreneurial policies, entrepreneurial self-efficacy, and entrepreneurial intention of students in a Chinese higher vocational college. In other words, perceived entrepreneurial education and perceived entrepreneurial policies positively influence entrepreneurial self-efficacy and entrepreneurial intention, respectively. Moreover, entrepreneurial self-efficacy mediates the effect of perceived entrepreneurial education and entrepreneurial intention, perceived entrepreneurial policies and entrepreneurial intention, respectively. There was no difference in the influence of perceived entrepreneurial education and perceived entrepreneurial policies on entrepreneurial intention and the mediating effect of entrepreneurial self-efficacy between male and female HVE students.

This study focused on the entrepreneurial behavior of students in vocational colleges, studied the characteristics of entrepreneurial intention and entrepreneurial self-efficacy of students receiving higher vocational education, and considered the influence of entrepreneurial education and government policies on students. As such, it contributes to entrepreneurial education studies in higher vocational education institutes. In our study, the moderating effect of gender is a significant contribution toward the extended TPB model in entrepreneurial education. Some suggestions on building entrepreneurial community were put forward, such as enabling students to learn knowledge that is closely related to practice and to perceive the value of entrepreneurship education by creating participatory projects and teaching methods, issuing policies that college students care most about, proactively informing students about policy content in a clear and concise manner, and fully considering the side effects of government policies and the compatibility among different kinds of policies.

In regards to the limitations, this study only includes students from five higher vocational colleges while there are many such colleges in China. In addition, potential variables such as age and regions were not included in the model for testing moderating effects. All these variables could be tested in future studies. Future research also can focus on the entrepreneurial intention of higher vocational college students in other countries, especially in western countries, study the factors that affect students’ entrepreneurial intention and the relationship among different factors, and enrich the existing quantitative research results through qualitative research.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: The data that support the findings of this study are available on request from the corresponding author, [A.Y.M. Atiquil Islam]. The data are not publicly available due to restrictions (e.g., containing information that could compromise the privacy of research participants). It is to specifically state that “No Competing interests are at stake and there is No Conflict of Interest” with other people or organizations that could inappropriately influence or bias the content of the paper.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was sponsored by Peak Discipline Construction Project of Education at East China Normal University, and Fundamental Research Funds for the Central Universities (2020ECNU-HLYT035).

ORCID iDs

Zheng Li https://orcid.org/0000-0003-3221-492X
A. Y. M. Atiquil Islam https://orcid.org/0000-0002-5430-8057

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