



# Exploring Factors Influencing Students' Entrepreneurial Intention in Vocational Colleges Based on Structural Equation Modeling: Evidence From China

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With the proposal of “mass entrepreneurship, mass innovation” and other ideas, the demand for entrepreneurial talent in China is increasing, but the supply of entrepreneurial talent is far insufficient. Consistent with theory of social cognition and planned behavior, this study outlines a conceptual model including entrepreneurial intention (EI), emotional competency (EC), entrepreneurial self-efficacy (ESE), entrepreneurial attitude (EA), entrepreneurial education (EE), and subjective norms (SN). A structural equation model was applied through a questionnaire survey of 382 vocational college students in Jiangxi province to test the relationship between the constructs in the model. The results show that, firstly, EA, EE, ESE, and EC have positive effects on EI, while the positive effect of SN on EI is not supported. Secondly, a mediating role is played by ESE and EA in the association between EI and EE. Thirdly, ESE and EA play mediating roles in the relationship between EI and EC. Some implications of EI for schools and students were discussed.

**Keywords:** higher vocational college students, entrepreneurial self-efficacy, subjective norms, emotional competency, entrepreneurial education, entrepreneurial attitude, entrepreneurial intention

## INTRODUCTION

In an era of increasing focus on technological progress and strong international competition, entrepreneurship is perceived not only as an approach to boost employment as well as social and political stability but also as a source for competition and innovation (Shane and Venkataraman, 2000). Entrepreneurs are the key to entrepreneurial activities, where entrepreneurial behavior is seen as voluntary and spontaneous, and entrepreneurial education is a tool for training entrepreneurs and enhancing entrepreneurial activities (Frye, 2018). Many studies have supported the predictive validity of intention on actual behavior and have regarded entrepreneurial intention as one of the key prerequisites for entrepreneurs to implement entrepreneurial behavior (Bird, 1988; Ajzen, 1991; Krueger et al., 2000), arguing that entrepreneurial intention can be cultivated (Gnyawali and Fogel, 1994). Young people, such as college students, are more inclined to possess better prospects for enterprise development and succeed in establishing innovative

businesses (Liñán, 2008; Padilla-Angulo, 2017). Consequently, many scholars have studied students' entrepreneurial intention and entrepreneurial education from various perspectives. Among notable research studies, Theory of Planned Behavior (TPB) has been widely employed because of its powerful explanatory and predictive power. On the basis of Theory of Planned Behavior, researchers have added other theoretical perspectives (such as social cognition theory, self-efficacy theory, and emotional intelligence perspective) to adjust Theory of Planned Behavior model to adapt to distinctive economic and cultural backgrounds (Palamida et al., 2018; Mozahem and Adlouni, 2021; Otache et al., 2021). However, in China, such research are insufficient. In 2018, General Secretary Xi Jinping made an important speech at the National Education Conference, calling for entrepreneurial education as well as innovation to go through the entire process of talent training in order to cultivate creative talent through creative education and create an innovative country with creative talent. There are many types of entrepreneurship supporting education, among which the course of higher education level entrepreneurship is an awareness education, specific for zero-experience students, aiming at improving their intention of entrepreneurship and training aspiring entrepreneurs (Liñán et al., 2010; Bae et al., 2014).

Vocational education is a significant attribute of higher education. From the perspective of the high-quality development of vocational education in China, it is vital to run entrepreneurial education well in higher vocational colleges to cater to the development of the times. Studying the current situation of students' entrepreneurial intention in vocational colleges, providing each student with practical and effective entrepreneurial education with determination and persistence in starting a business, and cultivating their knowledge and skills will not only help students succeed in starting a business but also create opportunities and more value for society.

The purpose of this study is to explore the key driving factors influencing the entrepreneurial intention of vocational college students and the relationship between these factors. After this introduction, this study puts forward the proposed theories and postulated hypotheses and then describes the methods used: sample description, research instrument, data analysis, path analysis, and research results. Finally, this study has drawn some conclusions, highlighted the practical significance, and acknowledged the inherent limitations of this research study.

## LITERATURE REVIEW

### Theory of Planned Behavior

In 1985, Ajzen added perceived behavior control (PBC) variable based on Reasoned Action Theory and preliminarily proposed TPB (Ajzen, 1985). Later, the paper "TPB" was published in 1991, marking the maturity of the theory. According to TPB, all factors that may influence behavior indirectly affect behavior performance through behavioral intention, which is the result of the joint influence of attitude toward behavior (ATB), SN,

and PBC. ATB represents the negative or positive feelings of a person regarding an action. The conceptualization of a person's assessment pertaining to a certain behavior forms such an attitude. SN highlights the social pressure endured by a person when deciding to exhibit a specific behavior. It also shows the effect of salient individuals or social groups, such as relatives and friends on individual behavioral decisions. PBC indicates the extent to which a person feels the difficulty or ease of exercising a certain set of behaviors. It demonstrates the perception of the person related to the factors that hinder or promote executive behavior. ATB, PBC, and SN are conceptually distinct but interrelated, and they work together on behavioral intentions. The more positive a person's ATB is, the more supported by important people around him, the stronger his PBC is, and the stronger his behavioral intention will be.

TPB has high predictive validity in behavior prediction, which can explain 39 and 27% of variance in intention and behavior, respectively, (Armitage and Conner, 2001). Up till the present moment, TPB is the most widely used theory to explain EI (Fernández-Pérez et al., 2017; Wijayati et al., 2021). TPB model provides a simple model for the main determinants of individual behavior and has been widely concerned with and applied in many research fields, such as social science and entrepreneurial management.

### Entrepreneurial Intention

Currently, scholars at home and abroad do not have a unified definition of EI. Although scholars vary widely on EI, there are still similarities in their interpretations of EI. Bird (1988) first proposed the concept of EI and pointed out that EI is a psychological state that makes the thoughts, attention, and behaviors of potential entrepreneurs focus on entrepreneurial activities. As the state of consciousness prior to action process, EI has an imperative role in an individual's decision to perform new business and is assumed as the best estimator of entrepreneurial-focused behavior (Gartner, 1988; Ajzen, 1991). Thompson (2009) defines EI as a person's intention to establish innovative businesses and to determinedly seek entrepreneurial opportunities in the future (Shahab et al., 2019). EI has been explicated in the extent literature as the psychological state of the person that stimulates the human desire to launch novel businesses or foster some novel extensions within the present streams of the business. This study has defined EI as a state of psychological preparation for an individual to establish an enterprise based on cognitive experience, emotional factors, and external environmental factors.

### Entrepreneurial Attitude

Social psychology defines attitude as the representation of individual cognition, including the subjective evaluation of oneself, others, affairs, activities, events, and so on. It has an important effect on individual responses and behaviors. EA refers to the level to which an individual is unwilling or inclined to engage in entrepreneurial activity (Ajzen, 1991). The reason why EA is considered as one of the factors affecting EI is that scholars from different backgrounds, cultures, and research

samples have proven that EA is the most significant predictor of EI. EA positively and significantly affects EI (Seng Te et al., 2019; Otache et al., 2021; Wijayati et al., 2021). All these studies show that the more positive students' attitudes toward entrepreneurship, the stronger their intention to start their own business.

The enlisted hypothesis is drawn on the basis of the above-mentioned discussions:

*H1: EI is positively influenced by EA.*

## Subjective Norms

SN is one of the important determinants of the TPB. SN refers to the perception of the person on whether intimate relationships in the social environment, such as colleagues, friends, and family, support a certain behavior, and on the impact of such an evaluation on the individual (Ajzen, 1991). Many studies have shown that the influence of SN on intention has high explanatory power and is extremely important for increasing EI. Lai and To (2020) conducted a survey of 220 young Chinese adults and found that SN significantly influences EI. Shi et al. (2020) report that there exists a significantly positive association between SN and EI among university students in Zhejiang Province, China. Other studies collected data from different countries and regions to underpin the association between SN and EI. Their studies have established consistent implications that SN facilitates the formation of EI (Mahmood et al., 2017; Palamida et al., 2018; Tarapuez et al., 2018).

Based on the proposed arguments, we have postulated the below hypothesis:

*H2: EI is positively influenced by SN.*

## Entrepreneurial Self-Efficacy

Bandura (1977), an American psychologist, was the first to propose the idea of self-efficacy by terming it as the judgment and self-evaluation of the person to complete a specific set of behaviors. Bandura's concept of self-efficacy is used to derive the concept of ESE. Chen et al. (1998) defined ESE as the strength of individuals to believe that they can successfully perform the roles and tasks of entrepreneurs. Individuals with a high sense of ESE tend to have firm beliefs, make more unremitting efforts in the face of tasks, and cope with more difficult challenges. People with low ESE often have to deal with stress and depression, which limit or impair their skill level.

The role of ESE in entrepreneurship research has received increasing attention, especially in research on the factors influencing EI. Self-efficacy is reported as a good predictor of start-up intention (Krueger et al., 2000; Zakaria and Nordin, 2020). The application and practice of social cognition theory (SCT) in entrepreneurship research indicates that EI and success are largely influenced by ESE, while Pelegrini and de Moraes (2021) revealed that the ESE of university students in developing countries significantly positively predicted EI. Meanwhile, gender difference lies in female ESE, which has a greater impact on EI. Chu et al. (2020) conducted a questionnaire survey among 312 Chinese

students who participated in early entrepreneurial practice and found that all aspects of ESE had a significantly positive effect on EI. With an exception, Amofah et al. (2020) studied 159 MBA students from two private universities in Ghana and found that ESE had no significant impact on college students' EI.

Consistent with the above arguments, the below hypothesis is also postulated:

*H3: EI is positively influenced by ESE.*

## Emotional Competency

Goleman (1998) defined EC as a kind of learning ability based on emotional intelligence, and a high-level EC contributes to excellent work performance. Additionally, Goleman recommended that there are two dimensions of EC: social and personal and skills. Personal skills are the ability to manage oneself. Among these personal skills, he identified three main abilities: self-awareness, self-regulation, and motivation. In terms of social skills, he suggested two abilities: empathy and social skills. Pradhan and Nath (2012) found that there is a significant positive correlation between emotional intelligence and entrepreneurial orientation. Subsequently, a large number of researchers began to pay attention to the relationship between EC and EI and conducted investigations. Huezo-Ponce et al. (2020) investigated students in different entrepreneurial ecosystems in Guadalajara, Jalisco, and Mexico and found that EC directly and positively affects EA and ESE but does not directly and positively affect EI. However, EA and ESE as opportunity perceptions had a directly positive impact on the enterprise performance of college students. Similarly, Wu and Tian (2021) conducted a survey of vocational college students in China and came to the same conclusion: EC completely affects EI through the mediators EA and ESE. Therefore, it can be concluded that with the improvement in their cognitive background, students with stronger EC are more inclined to develop the intention of launching a new business. Wen et al. (2020) found a significant positive correlation between ESE and EC. With the improvement in the EC level of vocational college students, ESE will increase. The lower the EC, the faster the improvement in ESE. The higher the EC, the more stable the ESE is. In China, having a high EC is extremely important for coping with the challenges of starting a business (Chu et al., 2020).

We have drawn the enlisted hypotheses on basis of the above arguments:

*H4: EA is positively influenced by EC.*

*H5: ESE is positively influenced by EC.*

*H6: EI is positively influenced by EC.*

## Entrepreneurial Education

EE aims to promote the fundamental quality of entrepreneurship and generate a kind of personality as the goal, not only to encourage the individual's consciousness of innovation, EE, entrepreneurship, and innovation spirit, but also to face the

whole society, for those who intend to pursue creative businesses, entrepreneurship, the entrepreneurial venture group, a phased hierarchical education of innovative training, thinking, and entrepreneurship capacity of practice (Frank et al., 2007; Liñán et al., 2011). Education services and training are majorly significant in emerging market countries, where low levels of business and technical skills can hinder motivated people from launching innovative ventures (Gnyawali and Fogel, 1994). According to self-determination theory, human capital theory, and ESE theory, EE is positively correlated with students' EI, because EE can provide enough knowledge and skills to motivate students to develop entrepreneurial careers. Gieure et al. (2019) revealed that students are more willing to gain entrepreneurial skills through effective training and education, and those with higher skills are more confident in themselves and more inclined to generate entrepreneurial ideas. In other words, ESE plays an important mediating role in the EE interpretation of EI. Boldureanu et al. (2020) pointed out that in entrepreneurship-focused educational programs, acquaintance with effective entrepreneurial models can be an important factor in fostering students' confidence in their entrepreneurial capacity and improving their attitude toward entrepreneurship. This finding is consistent with previous studies (Liñán et al., 2011). Jiang et al. (2017) took Chinese students majoring in social science and engineering science as research subjects and found that the quality of EE had a positive impact on EI, among which ESE played a mediating role. Bi and Collins (2021) confirmed the importance of both traits and mindsets in the development of students' ESE and identified the bridging role of behavioral skills. Mozahem and Adlouni (2021) tested and validated a sample of a total of 560 students from 4 private Lebanon universities and found that entrepreneurship courses led to an increase in ESE in the sample used.

The below hypotheses are presented based on the above arguments:

H7: EA is positively influenced by EE.

H8: ESE is positively influenced by EE.

H9: EI is positively influenced by EE.

To put it in a nutshell, after taking into account that EI represents the intention to become an entrepreneur or launch a new business, we use an EC perspective and EE theory to analyze the relationships among EC, cognitive factors (EA, SN, ESE), EE, and EI and extend the TPB model. The model to be tested is shown in Figure 1.

## MATERIALS AND METHODS

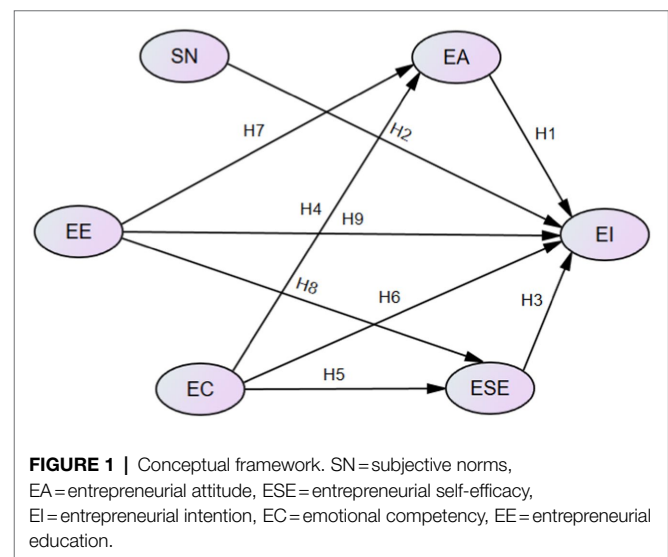
### Sample Description

In order to test this research proposition, an empirical study was conducted on students of vocational colleges in Nanchang city, Jiangxi Province, China through a questionnaire survey. Student groups have always been an important object of research

on EI (e.g., Kolvareid, 1996; Krueger et al., 2000; Padilla-Angulo, 2017; Bell, 2019; Gieure et al., 2019; Neneh, 2020), and universities are crucial for cultivating students' motivation and ability to participate in entrepreneurial activities effectively. In addition, previous empirical data have shown that Chinese students have strong entrepreneurial potential and high entrepreneurial awareness (e.g., Elston and Weidinger, 2018; Liu et al., 2019; Shi et al., 2020). Therefore, we believe that studying the EI of college students can provide practical and effective insights into China's environment.

Questionnaires were distributed and collected on the Internet. The study was ethical and completely confidential and anonymous, with all questions related to the study itself. At the beginning of the questionnaire, the participants were clear about the purpose of the survey and volunteered to participate. Questionnaires that take less than 10 min to complete will be excluded. A total of 382 students completed the questionnaires. The sample was mainly female (68.6%). Most of the students came from rural areas (82.5%).

The demographic information of respondents is shown in Table 1.



**FIGURE 1 |** Conceptual framework. SN=subjective norms, EA=entrepreneurial attitude, ESE=entrepreneurial self-efficacy, EI=entrepreneurial intention, EC=emotional competency, EE=entrepreneurial education.

**TABLE 1 |** Demographic information of respondents.

| Demographic variables |                        | F   | %     |
|-----------------------|------------------------|-----|-------|
| Gender                | Male                   | 120 | 31.40 |
|                       | Female                 | 262 | 68.60 |
| Grade                 | Freshman               | 265 | 69.40 |
|                       | Sophomore              | 102 | 26.70 |
|                       | Junior                 | 15  | 3.90  |
|                       | Senior                 | 0   | 0.00  |
| Major field           | Science and Technology | 136 | 35.60 |
|                       | Literature and History | 2   | 0.52  |
|                       | Economic management    | 116 | 30.37 |
|                       | Others                 | 128 | 33.51 |
|                       | Unlabeled              | 0   | 0.00  |
| Origin of student     | Urban                  | 67  | 17.54 |
|                       | Rural                  | 315 | 82.46 |

N=382; F: Frequency; %: Percent.

## Research Instrument

As the research model (Figure 1) is presented by the authors, none of the available tools are appropriate. We integrated and appropriately modified the tools previously validated in other environments to form the questionnaire for this study. In the actual test, the questions were translated into the Chinese language so that the participants could understand the research questions more accurately. Therefore, a 5-point Likert scale ranging from 5 (strongly agreed) to 1 (strongly disagreed) was used to measure all relevant items. The variables were adopted as follows: For the measurement of SN, the three questions were drawn from the scales of Kolvereid (1996) and Liñán and Chen (2009). For the measurement of EA, five questions were drawn from the scale of Liñán and Chen (2009). For the measurement of EE, four questions were drawn from the scale of Denanyoh et al. (2015). For the measurement of EC, five questions were drawn from the

scale of Fernández-Pérez et al. (2017). For the measurement of ESE, six questions were drawn from the scales of Tsai et al. (2016) and Liñán (2008). For the measurement of EI, five questions were drawn from the scale of Liñán and Chen (2009). All items used in this study list in Table 2.

## Data Analysis

As suggested by Anderson and Gerbing (1988), we adopted a two-step approach to the structural equation model (SEM). First, the measurement model was verified by conducting a confirmatory factor analysis (CFA). SEM was used to test the relationship between the structures. Finally, according to Hair et al. (2006), we applied fit indices from different categories to test model fitting: absolute fit indices, which evaluate the efficiency at which the proposed model regenerates the observed data, indices of parsimony, which is the same as the absolute

**TABLE 2 |** Items used to measure research constructs.

| SN   |   |  |
|--|---|--|
| Definition: It refers to an individual's perception of whether close relationships, such as colleagues, friends, and family, support a certain behavior in the social environment, and the impact of such evaluation on an individual. |   |  |
| SN1  | If I decided to create a firm, my closest family would approve of that decision.  | Kolvereid (1996) and Liñán and Chen (2009) |
| SN2  | If I decided to create a firm, my closest friends would approve of that decision.   |  |
| SN3  | If I decided to create a firm, people who are important to me would approve of that decision.                             |  |
| EA   |   |  |
| Definition: The degree to which an individual is unwilling or inclined to engage in entrepreneurial activity.  |   |  |
| EA1  | Being an entrepreneur implies more advantages than disadvantages to me.   | Liñán and Chen (2009)                      |
| EA2  | A career as entrepreneur is attractive for me.  |  |
| EA3  | If I had the opportunity and resources, I'd like to start a firm.   |  |
| EA4  | Being an entrepreneur would entail great satisfactions for me.  |  |
| EA5  | Among various options, I would rather be an entrepreneur.   |  |
| EE   |   |  |
| Definition: It is a kind of education and training service aiming at improving the basic quality of entrepreneurship and producing a kind of personality.  |   |  |
| EE1  | The university promotes the students' capability required for entrepreneurship.   | Denanyoh et al. (2015)                     |
| EE2  | The university enhances students' skills related to entrepreneurship.   |  |
| EE3  | The university gives students with applicable information and assist students on how to initiate a venture.               |  |
| EE4  | I believe that entrepreneurship matters can be initiated through education.   |  |
| EC   |   |  |
| Definition: It is a kind of learning ability based on emotional intelligence, and having good EC contributes to excellent work performance.  |   |  |
| EC1  | I am able to recognize my own emotions and their effect on my actions.  | Fernández-Pérez et al. (2019)              |
| EC2  | I consider myself a person who is flexible and capable of addressing changes.   |  |
| EC3  | I like to push myself to improve or to meet a certain criterion of excellence.  |  |
| EC4  | I am able to understand the feelings and viewpoints of others and I am actively interested in the things they care about. |  |
| EC5  | I have the ability to negotiate and resolve disagreements.  |  |
| ESE  |   |  |
| Definition: It is the strength of individuals to believe that they can successfully perform the roles and tasks of entrepreneurs.  |   |  |
| ESE1   | I can work productively under continuous stress, pressure, and conflict.  | Tsai et al. (2014) and Liñán (2008)        |
| ESE2   | I can originate new ideas and products.   |  |
| ESE3   | I can develop and maintain favorable relationships with potential investors.  |  |
| ESE4   | I can see new market opportunities for new products and services.   |  |
| ESE5   | I can recruit and train key employees.  |  |
| ESE6   | I can develop a working environment that encourages people to try out something new.                                      |  |
| EI   |   |  |
| Definition: A state of psychological preparation established by individuals based on cognitive experience, emotional factors, and external environmental factors.  |   |  |
| EI1  | My professional goal is becoming an entrepreneur.   | Liñán and Chen (2009)                      |
| EI2  | I will make every effort to start and run my own firm.  |  |
| EI3  | I am determined to create a firm in the future.   |  |
| EI4  | I have very seriously thought of starting a firm.   |  |
| EI5  | I have got the firm intention to start a firm someday.  |  |

SN = subjective norms, EA = entrepreneurial attitude, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention, EC = emotional competency, EE = entrepreneurial education.



fit indices except that it considers the complexity of the model, and incremental fit indices, which examine how effectively a specified model fits comparatively to the alternative-baseline model. AMOS 24.0 was used to undertake all analyses.

## RESULTS

### Descriptive Statistics

Table 3 represents the descriptive statistics of the constructs.

Prior to the CFA, the measurement model was assessed for construct validity and reliability. The descriptive statistics showed that all mean values are greater than the midpoint of 3.50, varying from 3.559 to 3.798. Additionally, the standard deviation (S.D) ranged from 0.711 to 0.779. The skew index ranged between  $-0.965$  and  $-0.218$  while the kurtosis index varied from  $-0.066$  to 1.336. Both Skew and Kurtosis indices are acceptable and reflective of univariate normality. Thus, the data gathered for this study is considered sufficient for structural equation modeling.

### Test of the Measurement Model

The purpose of the CFA test is to determine if the association between a factor and its corresponding measure fulfills the theoretical associations presented by researchers. The assessment of significance is used to establish the model fit through the t-values of the individual item loadings. This study has also used the root mean square error of approximation (RMSEA),  $\chi^2$  statistics, standardized root mean residual (SRMR), Tucker-Lewis index (TLI), and comparative fit index (CFI). The chi-square divided by degrees of freedom ( $\chi^2/df$ ) should not be greater than 3 (Carmines, 1981) and the CFI and TLI should both surpass 0.90 (Preacher and Hayes, 2008) for a model to be considered a good fit. Both SRMR and RMSEA should not be greater than 0.08 in order to be considered sufficient (Hair et al., 2006). Additionally, as per the suggestion of Hair et al. (2021), the average variance extracted (AVE) value needs to exceed 0.5, as the composite reliability (CR) value should be greater than 0.8.

The measurement model also exhibits an adequate model fit ( $\chi^2=791.320$ ,  $\chi^2/df=2.362$ , GFI=0.868, AGFI=0.839, TLI=0.942, CFI=0.949, RMSEA=0.060, SRMR=0.042). In sum, our test results indicate the appropriateness of the measurement model, which is a reliable indicator of the hypothesized constructs, thus allowing tests of the structural relationships in the various models to proceed.

### Convergent and Discriminant Validities

Convergent validity is to evaluate whether the respective indicators are measuring the construct they want to measure. Table 4 demonstrates the factor loading of each item on the constructs in the measurement model. All parameter estimates are significant at a  $p < 0.05$  level. The AVE values ranged between 0.563 for EC and 0.720 for EE, which are above the threshold value of 0.50. Cronbach's alpha is used to calculate the internal consistency of all constructs. As shown in Table 4, Cronbach's

TABLE 3 | Descriptive statistics.

|     | Mean  | SD    | Skewness | Kurtosis |
|-----|-------|-------|----------|----------|
| SN  | 3.586 | 0.762 | -0.439   | 0.946    |
| EE  | 3.798 | 0.711 | -0.965   | 2.253    |
| EC  | 3.698 | 0.756 | -0.813   | 1.336    |
| EA  | 3.678 | 0.779 | -0.504   | 0.351    |
| ESE | 3.562 | 0.747 | -0.355   | 0.291    |
| EI  | 3.559 | 0.766 | -0.218   | -0.066   |

SN=subjective norms, EA=entrepreneurial attitude, ESE=entrepreneurial self-efficacy, EI=entrepreneurial intention, EC=emotional competency, EE=entrepreneurial education.

Alpha values were considered high in the range of 0.834–0.949 (Nunnally and Bernstein, 1994). Therefore, convergence validity was established for all measurement items in this study.

Discriminant validity denotes the significant difference or low correlation between the potential variables represented by one or another facet. To examine the discriminant validity between the constructs, the criteria proposed by Fornell and Larcker (1981) were adapted in this study. The square root of the AVE (diagonal) of the measurement model is greater than the correlation coefficient (off-diagonal) between the latent variable and other latent variables in Table 5 below. Then, it indicates good discriminant validity.

### Path Coefficient Analysis

The major purpose of the path coefficient is to report the extent and impact significance of the independent variables related to the dependent variable. As indicated by Hair et al. (2021), the authors in this study have put forward a directional hypothesis for H1 to H9, revealing that the value of  $p$  must be below 0.05 and the t-value should be greater than 1.96. Consistent with Table 5, hypothesis 2 was rejected because the criteria were not fulfilled.

The study findings indicate that EA significantly impact the EI ( $\beta=0.426$ ,  $p<0.001$ ), ESE ( $\beta=0.79$ ,  $p<0.001$ ), and EE ( $\beta=0.113$ ,  $p<0.05$ ), as a result supporting Hypotheses 1, 3, and 9. Although, SN ( $\beta=0.02$ ,  $p>0.05$ ) has no significant influence on EI. Furthermore, EC had a significant effect on EI ( $\beta=-0.435$ ,  $p<0.001$ ), EA ( $\beta=0.749$ ,  $p<0.001$ ), and ESE ( $\beta=0.776$ ,  $p<0.001$ ). EE also had a significantly positive impact on EA ( $\beta=0.16$ ,  $p<0.001$ ), and ESE ( $\beta=0.189$ ,  $p>0.05$ ). These results provide support for hypotheses 4, 5, 6, 7, and 8. In total, eight of the nine hypotheses are supported.

### Mediating Testing

The Bootstrap method currently serves as the ideal test method for mediating effects (Preacher and Hayes, 2008). A significant mediating effect is considered in cases where the confidence interval of the computed indirect effect does not contain zero.

Tables 6 and 7 show the output of this test, which reveal that EI is affected by EE through EA and ESE, indicating that EA and ESE are mediators. EE directly and significantly affects EI, and EE partially affects EI through EA and ESE. Meanwhile, EC directly and significantly affects EI. EC partially affects EI through EA and ESE.

**TABLE 4** | Convergence validity.

|      |      |     | Unstd. | S.E.  | t-value | p   | std.  | SMC   | CR    | AVE   | Cronbach's alpha |
|------|------|-----|--------|-------|---------|-----|-------|-------|-------|-------|------------------|
| SN1  | <--- | SN  | 1.000  |       |         |     | 0.873 | 0.561 | 0.910 | 0.771 | 0.850            |
| SN2  | <--- | SN  | 1.004  | 0.067 | 14.976  | *** | 0.858 | 0.674 |       |       |                  |
| SN3  | <--- | SN  | 1.071  | 0.071 | 15.112  | *** | 0.903 | 0.745 |       |       |                  |
| EA1  | <--- | EA  | 1.000  |       |         |     | 0.835 | 0.496 | 0.924 | 0.709 | 0.948            |
| EA2  | <--- | EA  | 1.143  | 0.080 | 14.217  | *** | 0.794 | 0.612 |       |       |                  |
| EA3  | <--- | EA  | 1.066  | 0.073 | 14.655  | *** | 0.878 | 0.653 |       |       |                  |
| EA4  | <--- | EA  | 1.105  | 0.074 | 15.009  | *** | 0.825 | 0.689 |       |       |                  |
| EA5  | <--- | EA  | 1.256  | 0.081 | 15.481  | *** | 0.875 | 0.740 |       |       |                  |
| EC1  | <--- | EC  | 1.000  |       |         |     | 0.770 | 0.354 | 0.904 | 0.654 | 0.834            |
| EC2  | <--- | EC  | 1.515  | 0.138 | 10.967  | *** | 0.780 | 0.608 |       |       |                  |
| EC3  | <--- | EC  | 1.278  | 0.121 | 10.569  | *** | 0.850 | 0.533 |       |       |                  |
| EC4  | <--- | EC  | 1.233  | 0.121 | 10.182  | *** | 0.810 | 0.473 |       |       |                  |
| EC5  | <--- | EC  | 1.367  | 0.128 | 10.683  | *** | 0.830 | 0.552 |       |       |                  |
| EI1  | <--- | EI  | 1.000  |       |         |     | 0.912 | 0.790 | 0.960 | 0.799 | 0.896            |
| EI2  | <--- | EI  | 0.848  | 0.040 | 21.379  | *** | 0.921 | 0.661 |       |       |                  |
| EI3  | <--- | EI  | 1.015  | 0.035 | 28.673  | *** | 0.921 | 0.867 |       |       |                  |
| EI4  | <--- | EI  | 1.008  | 0.041 | 24.315  | *** | 0.887 | 0.750 |       |       |                  |
| EI5  | <--- | EI  | 1.060  | 0.039 | 26.930  | *** | 0.906 | 0.821 |       |       |                  |
| EE1  | <--- | EE  | 1.000  |       |         |     | 0.891 | 0.753 | 0.961 | 0.831 | 0.919            |
| EE2  | <--- | EE  | 1.040  | 0.036 | 28.985  | *** | 0.952 | 0.912 |       |       |                  |
| EE3  | <--- | EE  | 1.085  | 0.037 | 29.092  | *** | 0.955 | 0.916 |       |       |                  |
| EE4  | <--- | EE  | 0.953  | 0.044 | 21.787  | *** | 0.910 | 0.696 |       |       |                  |
| ESE1 | <--- | ESE | 1.000  |       |         |     | 0.783 | 0.552 | 0.938 | 0.715 | 0.949            |
| ESE2 | <--- | ESE | 1.131  | 0.069 | 16.480  | *** | 0.831 | 0.691 |       |       |                  |
| ESE3 | <--- | ESE | 0.999  | 0.061 | 16.481  | *** | 0.939 | 0.691 |       |       |                  |
| ESE4 | <--- | ESE | 1.058  | 0.065 | 16.342  | *** | 0.875 | 0.681 |       |       |                  |
| ESE5 | <--- | ESE | 1.011  | 0.060 | 16.721  | *** | 0.847 | 0.709 |       |       |                  |
| ESE6 | <--- | ESE | 0.897  | 0.057 | 15.703  | *** | 0.795 | 0.632 |       |       |                  |

Unstd. = unstandardized factor loading; std. = standardized factor loading; S.E. (standard error) is an estimate of the standard error of the covariance; CR is the critical ratio obtained by dividing the estimate of the covariance by its standard error; AVE: average variance extract; SMC = the square of the normalization coefficient; \*\*\* denotes  $p < 0.001$ , SN = subjective norms, EA = entrepreneurial attitude, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention, EC = emotional competency, EE = entrepreneurial education.

**TABLE 5** | Discriminant validity.

|     | EA           | EC           | EE           | EI           | ESE          | SN           |
|-----|--------------|--------------|--------------|--------------|--------------|--------------|
| EA  | <b>0.842</b> |              |              |              |              |              |
| EC  | 0.622        | <b>0.809</b> |              |              |              |              |
| EE  | 0.486        | 0.391        | <b>0.912</b> |              |              |              |
| EI  | 0.745        | 0.52         | 0.603        | <b>0.894</b> |              |              |
| ESE | 0.788        | 0.68         | 0.522        | 0.788        | <b>0.846</b> |              |
| SN  | 0.572        | 0.586        | 0.335        | 0.476        | 0.551        | <b>0.878</b> |

SN = subjective norms, EA = entrepreneurial attitude, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention, EC = emotional competency, EE = entrepreneurial education. The bold figure of the diagonal is the square root of average variance extracted (AVE).

## DISCUSSION AND IMPLICATIONS

### Discussion

This study used TPB, SCT, and EE to investigate the influence of EA, SN, ESE, EC, and EE on EI. As mentioned above, TPB is apparently inadequate to explain EI, because it only considers cognitive factors. Therefore, ESE, EC, and EE were introduced through SCT and other literature reviews. By integrating the above factors, we were in a position to move beyond the explanations presented in the TPB framework, which consequently improved the explanatory power of the research model proposed in this study.

As expected, the results of this study showed that EA and ESE were the two most significant factors affecting EI. As predicted, our study with Chinese vocational college students as the research sample proved that EA and ESE have a positive influence on EI, which is parallel to research findings (Law and Breznik, 2016; Cavazos-Arroyo et al., 2017). It is entirely possible that a person who has a positive attitude toward starting a business, or a person who is confident in their capacity to establish a new business and has the courage to face the follow-up challenges, is more prone to start a business.

Surprisingly, our study found that the SN was not a significant predictor of EI. This is inconsistent with some previous studies (Ajzen, 1991; Cavazos-Arroyo et al., 2017; Shi et al., 2020). Our results suggest that important people, such as family and friends, have little bearing on whether an individual chooses to start a business. This means that college students may already have a relatively independent idea of their future employment choices. The research of Doanh and Bernat (2019) and Hongdiyanto et al. (2020) has confirmed our findings and held that SN is not an important factor in explaining EI, further pointing out that SN affects EI through EA and ESE.

EE had a significant and positive influence on EI. The results of the mediation test show that EA and ESE play partial mediating roles in EE and EI, which is consistent with previous research (Jiang et al., 2017; Boldureanu et al., 2020). The skills

**TABLE 6** | Summary of the hypothesis tests.

| Hypotheses | Path     | Path coefficient ( $\beta$ ) | t-value | p-value | Results  |
|------------|----------|------------------------------|---------|---------|----------|
| H1         | EA → EI  | 0.426                        | 5.215   | ***     | Accepted |
| H2         | SN → EI  | 0.02                         | 0.346   | ns      | Rejected |
| H3         | ESE → EI | 0.79                         | 7.46    | ***     | Accepted |
| H4         | EC → EA  | 0.749                        | 9.322   | ***     | Accepted |
| H5         | EC → ESE | 0.776                        | 9.862   | ***     | Accepted |
| H6         | EC → EI  | -0.435                       | -2.967  | **      | Accepted |
| H7         | EE → EA  | 0.16                         | 3.612   | ***     | Accepted |
| H8         | EE → ESE | 0.189                        | 4.611   | ***     | Accepted |
| H9         | EE → EI  | 0.113                        | 2.541   | *       | Accepted |

\*\*\* denotes  $p < 0.001$ , \*\* denotes  $p < 0.01$ , \* denotes  $p < 0.5$ , ns = non-significant; SN = subjective norms, EA = entrepreneurial attitude, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention, EC = emotional competency, EE = entrepreneurial education.

**TABLE 7** | The mediating testing result.

| Parameter               | Path coefficient ( $\beta$ ) | SE    | Bias-corrected 95%CI |        |         | Percentile 95%CI |        |         | Results  |
|-------------------------|------------------------------|-------|----------------------|--------|---------|------------------|--------|---------|----------|
|                         |                              |       | Lower                | Upper  | p-value | Lower            | Upper  | p-value |          |
| <b>Indirect effects</b> |                              |       |                      |        |         |                  |        |         |          |
| EE → EA → EI            | 0.068                        | 0.04  | 0.005                | 0.16   | 0.037   | 0.007            | 0.149  | 0.067   | Accepted |
| EE → ESE → EI           | 0.15                         | 0.051 | 0.053                | 0.256  | 0.003   | 0.048            | 0.25   | 0.004   | Accepted |
| EC → EA → EI            | 0.319                        | 0.098 | 0.15                 | 0.534  | 0.001   | 0.154            | 0.543  | 0.001   | Accepted |
| EC → ESE → EI           | 0.613                        | 0.13  | 0.413                | 0.93   | 0       | 0.41             | 0.922  | 0       | Accepted |
| <b>Direct effects</b>   |                              |       |                      |        |         |                  |        |         |          |
| EE → EI                 | 0.122                        | 0.098 | 0.04                 | 0.351  | 0.048   | 0.06             | 0.324  | 0.027   | Accepted |
| EC → EI                 | -0.731                       | 0.348 | -1.624               | -0.255 | 0.002   | -1.541           | -0.231 | 0.002   | Accepted |
| <b>Total effects</b>    |                              |       |                      |        |         |                  |        |         |          |
| EE → EI                 | 0.358                        | 0.117 | 0.128                | 0.591  | 0.001   | 0.117            | 0.584  | 0.002   | Accepted |
| EC → EI                 | 0.834                        | 0.219 | 0.440                | 1.303  | 0.004   | 0.219            | 0.510  | 0.002   | Accepted |

SN = subjective norms, EA = entrepreneurial attitude, ESE = entrepreneurial self-efficacy, EI = entrepreneurial intention, EC = emotional competency, EE = entrepreneurial education.

and knowledge needed to launch a business can be acquired through EE. Therefore, by teaching students the knowledge and skills needed for future entrepreneurship, it can both directly promote individuals to produce EI and promote EI by producing more positive EA or higher ESE. Sun et al. (2017) did an in-depth study on this, which not only supplemented the TPB model but also pointed out what specific elements of EE influence EA and ESE.

EC partially mediates EI through EA and ESE. This fact confirms previous studies by other authors (Fernández-Pérez et al., 2017; Wen et al., 2020). In other words, the improvement in EC will provide value for the precognitive factors (EA, ESE) of EI. When college students' EC improve, they feel more convinced about their entrepreneurial capabilities, which allows them to capitalize on the opportunities. Similarly, the more EC students were, the more positive they felt about entrepreneurship and the more likely they were to pursue entrepreneurship as a career choice.

## Theoretical Implications

The findings of this study make several contributions to this field. First of all, this study investigated the factors influencing the EI of vocational college students from different grades and disciplines in the context of COVID-19, which has not been

sufficiently studied so far. Secondly, a insignificant relationship between SN and EI was confirmed, revealing the insignificant role of SN in students' EI in the COVID-19 pandemic. Thirdly, EE partially affects EI through EA and ESE. Meanwhile, EC partially affects EI through EA and ESE.

## Practical Implications

First, higher vocational colleges should strengthen their innovative education. EE has a significantly positive impact on entrepreneurial consciousness. On the one hand, higher vocational colleges should update their educational ideas according to the background of The Times, integrate the idea of innovation and entrepreneurship into every link between education and teaching, pay attention to improving the comprehensive quality of students, and train students to take the concept of lifelong entrepreneurship as their goal. On the other hand, innovation and EE should attach importance to the status and role of teachers in education and strive to create a team of innovative teachers with excellent quality, solid expertise, and strong practical ability.

Second, the quality of students at higher vocational colleges should be improved. Students should take the initiative to overcome passive thinking, overcome the thought of not being enterprising and not seeking to make progress, and instead,



have an objective and scientific understanding of their own strengths and weaknesses, and be full of confidence and determination in their entrepreneurial dreams and prospects. Focus on learning, cultivating entrepreneurial awareness, and identifying potential entrepreneurial opportunities.

Finally, a good entrepreneurial environment in society should be created (Wu and Wang, 2018). On the one hand, based on the national conditions of the country, the government can support college students' starting their own businesses by reducing the cost of taxation, discount loans, simplifying the examination and approval process, etc., and can also set up entrepreneurship guidance institutions to give timely and effective guidance to inexperienced students. On the other hand, social media is used to change the social value orientation and gradually improve people's inherent impression of entrepreneurship so that students can get support from their families and friends.

## Research Limitations and Future Works

As with all empirical studies, the current study is not free of limitations. First, the study sample included only 382 students from technical and vocational colleges in Jiangxi Province of China. Therefore, the research sample should be wider than this paper and further research should also include student subjects from other provinces or countries to discover potential differences in the influencing factors of students' EI. Second, because the aim of this research study is not to assess the business practices themselves, it fails to highlight how EI translates into actions over time. Therefore, further longitudinal studies are needed to examine this issue and validate these results in different entrepreneurial settings. Third, underclassmen and upperclassmen seem to be important factor in EE because of their study experience in vocational colleges. These analysis results might be useful in conducting the effectiveness of EE. Therefore, it is worth supplementing in subsequent studies. Finally, the relationship between EI and individual EC is also worth exploring considering that EE can be received in active and passive ways.

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## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethics Committee of Psychology and Behavioral Sciences, Tianjin University. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

## AUTHOR CONTRIBUTIONS

XW and ZO: conceptualization. XF, YT, and XN: data curation. XF, YT, and TY: writing original draft. TY, XX, YW, and QH: writing—review and editing. All authors contributed to the article and approved the submitted version.

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