



## FACTORS INFLUENCING THE DEVELOPMENT OF ENTREPRENEURSHIP COMPETENCY IN VOCATIONAL HIGH SCHOOL STUDENTS: A CASE STUDY

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### ABSTRACT

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#### Keywords

Entrepreneurship  
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This paper aims to explain the factors that influence entrepreneurship education in shaping the development of entrepreneurship competency in vocational high school (SMK) students. The study was conducted in 4 (four) district / city locations, with each location represented by 3 (three) schools (2 public and 1 private). Data was collected through a questionnaire distributed to 300 students, with only 247 were returned. Analysis of the study was conducted using SEM technique with the Lisrel 87.0 program. The results showed that Entrepreneurship education (EED) in secondary and vocational schools positively affected collaborative learning (SLC) and the development of student entrepreneurship competencies (SECD). Entrepreneurship education itself is influenced by the competency factors of school principals' competencies (PEC), entrepreneurship training (ETR), and the participation of business and industry players (BIP). The problem that is still faced is how to arouse students' interest in making the field of entrepreneurship the foundation of life after completing their education. Students no longer expect to get jobs from the formal sector (government and private), but are independent, creative, innovative, and initiatives to create jobs from the entrepreneurial sector. For this reason, entrepreneurship education is needed by paying attention to and emphasizing the strength of the indicators of each variable found in this study, including: fostering cooperation with the business and industrial world, training in production and marketing, organizing teaching factories, supporting experts, teacher competencies in learning entrepreneurship, and utilization of local potential.

**Contribution/Originality:** Massive entrepreneurship education needs to be carried out to solve the problem of unemployment. For this reason, it is necessary to understand the factors that influence and the strength of the indicators for each of these factors, so that a systematic and effective strategy can be formulated in the implementation of entrepreneurship education, especially for vocational students.

### 1. INTRODUCTION

In managing the national education system in Indonesia, entrepreneurship education program is one of the subjects offered in middle and secondary levels of education (Directorate General of Higher Education, 2010). Entrepreneurship education is expected to produce graduates who are independent, creative, innovative, and able to create jobs, while addressing educated unemployment. Entrepreneurship education is expected to impart knowledge and enthusiasm to the students so that later they can be independent and be the foundation for running their lives. In fact, to encourage the entrepreneurial spirit of students, the rules require the school principal to have

entrepreneurial competence, so as to manage and develop entrepreneurship in schools (Regulation of Minister of National Education Republic of Indonesia No.13/2007, 2007).

Suharyadi, Nugroho, Purwanto, and Faturrohman (2011) revealed a few advantages to become an entrepreneur such as: having the freedom to achieve the desired goals, having the opportunity to show potential, obtaining maximum benefits, making changes, creating job opportunities, and playing a role in the community and getting recognition. Broadly speaking, the benefits gained from an entrepreneur are freedom in managing money, time, and recognition of success (Indriaturrahi & Sudiyatno, 2016; Intan, 2015; Sherlywati, Handayani, & Harianti, 2017).

The reality of entrepreneurship education in the secondary education environment in particular has not yet achieved the expected results. According to the records of the Ministry of Cooperatives and Small and Medium Enterprises (SMEs), the number of entrepreneurs in Indonesia has indeed in recent years but not as expected (Walter, no year). This increase comes from various categories of educational background status, whereas in terms of the number of secondary education graduates (SMA = Senior High School and SMK = Vocational High School) it seems that they have not utilized entrepreneurship as a source of life. Data in 2014 recorded the number of unemployed SMA/SMK graduates to be 3,295,307 which increased in 2018 to 3,662,063 graduates. The unemployment rate of SMK graduates was recorded at 1,332,521 in 2014 and increased to 1,731,743 in 2018 (Central Statistics Agency, 2019). The high unemployment rate was caused by the lack of job opportunities and the low interest of graduates to become entrepreneurs. On the other hand, the results of the study showed that the readiness of schools in managing and equipping entrepreneurship was still weak, such as: the development of school cooperatives, apprenticeship programs, student creativity, and others (Wiyanto, 2012).

Allegedly, the failure of entrepreneurship education in increasing the number of entrepreneurs is caused by the inability to develop entrepreneurial competencies and interests of students. The value of entrepreneurship education is not inherent in students increasing their interest, and making behavioral orientation after completing education. The failure though is thought to be caused by a lack of attention to the factors that influence it, both internal and external. Internal factors come from within students in the form of mentality and self-drive for entrepreneurship, while external comes from outside students themselves. Entrepreneurship education does not have an integrative analysis of these factors.

However, this research focuses only on external factors towards entrepreneurship education, and its ability to motivate and develop independence, and creativity among students for entrepreneurship after graduating from school, especially for students who do not continue their education to higher levels for various reasons. These external factors are not only limited to theoretical learning and entrepreneurial practices inside and outside the classroom by teachers to students, but also due to other factors, such as: the role of the school principal, training activities, participation of business people, and so on.

This paper will seek an explanation of the influence of these external factors on entrepreneurship education and efforts to develop student entrepreneurial competencies. External factors are limited to the role of the principal (PEC), training (ETR), and the participation of business and industry (BIP), on entrepreneurship education (EED), collaborative learning students (SLC), and the development of entrepreneurial competencies of students (SECD). PEC, ETR, and BIP are exogenous variables that affect EED, SLC, and SECD as endogenous variables. But the analysis also would determine the influence EED and SLC as exogenous to SECD as an endogenous variable.

## 2. LITERATURE REVIEW

### 2.1. Entrepreneurship Education

Entrepreneurship is defined as a mental and behavioral creative and innovative effort to develop practiced. Winarto (2002); Zimmerer (2005); Dubrin (2013) and Drucker (2015) suggest that entrepreneurship is the application of creativity and innovation to problem solving & to take advantage of various opportunities. Robbins and Coulter (2018) argues, entrepreneurship is a process in which a person or a group of individuals using an

organized effort and means to seek new opportunities and create a value that grows with the needs and desires through an innovation and uniqueness.

Entrepreneurship is the creative and innovative effort of a person or group to appear something that has added value, is useful, provides employment, and has results that are beneficial to themselves and others. Smith has long argued that entrepreneurship is closely linked to the division of labor and economic growth ([https://en.wikipedia.org/wiki/The\\_Wealth\\_of\\_Nations](https://en.wikipedia.org/wiki/The_Wealth_of_Nations)). Therefore, it is not surprising that each country encourages the development of the number of actors involved in the field of entrepreneurship. An entrepreneur has characteristics that are consistent with modernization and economic progress, such as: trustworthiness, task and results oriented, risk taking, leadership, originality, future oriented, honesty and diligence (<https://en.Wiki.pedia.org/wiki/Entrepreneurship>).

Assuming that entrepreneurship is not only based on one's talents but can also be learned, one of the efforts to increase the number of entrepreneurs is through secondary education and higher education. Education here can be interpreted as the deliberate dissemination and inculcation of values through mentoring, teaching and training activities, which take place in school and outside of school to prepare or equip students to play a role in the future (see: Dale, 2018; Sari, 2019). Global Entrepreneurship Monitor (GEM) data shows that Indonesia only has about 1.65 percent of entrepreneurs from a population of 270 million, still far from the ideal number. This data is also lagging behind Singapore, Malaysia, and Thailand, which noted employers have more than 3% of the total population. Even developed countries like the United States and Japan have more than 10 percent of the entrepreneur population (Kuwado, 2018; Primus, 2016).

Entrepreneurship education is a systematic and holistic process that aims to form people who are able to translate ideas creatively, innovatively, productively, and responsively to exploit existing potential (Isrososiawan, 2013)). It is holistic in the sense of being implemented into educational activities in schools by involving teachers, principals, students, parents, and others in the entrepreneurial community. Entrepreneurship education can be integrated into all subjects, extracurricular activities, personal development activities, business practices, textbooks, local content, and so on (Curriculum Center, 2010; Hapsari, 2017).

## 2.2. Influence Factors

The high unemployment rate of secondary education graduates shows that the mechanism of entrepreneurship education has not been able to attract their interest. Wiratno (2012) and Jayadi, Triastuti, and Prasilowati (2020) suggested that there was no increase in student entrepreneurial interest from before and after participating in entrepreneurship education. Kusuma and Warmika (2016) show that at least the factors that influence entrepreneurial interest are motivation, the need for achievement, and the desire to implement it. Implicitly, education in the effort to develop students' entrepreneurial competencies themselves is influenced by various factors, including external factors that will be the focus of attention in this paper namely, principals' entrepreneurial competencies, entrepreneurship education and training, business and industrial actors, and student learning collaboration. Below are explained the understanding of each of these factors.

### 2.2.1. Principal Entrepreneurship Competency

It is suspected that one of the factors influencing the implementation of entrepreneurship education is the role of the principal. Entrepreneurship education in schools tends not to run smoothly as expected, if it has the support of the school principal, either making a vision in managing his leadership, supporting the entrepreneurial practices in the school, establishing cooperative relationships with various parties in the development of entrepreneurship education, and others. In administering the national education system in Indonesia, regulations also contain the requirement that principals must have entrepreneurial competence (Regulation of Minister of National Education Republic of Indonesia No.13/2007, 2007). Entrepreneurial competence will be the basis for principals to lead their

institutions by optimally utilizing school resources, carrying out entrepreneurial roles, creating innovation, working hard, finding solutions to school obstacles, and having entrepreneurial instincts and mentality.

Various studies tend to strengthen the assumption, that there is a significant influence of the role of the principal on entrepreneurship education in schools. [Wiyatno \(2013\)](#) and [Samino \(2013\)](#) suggested that there was a positive influence on the principals' entrepreneurial competence on the development of business activities in schools. It is consistent with [Sugiyar \(2014\)](#) who accepted the role of school principals to encourage teachers, community, and student relations and to foster business activities in schools. It is therefore expected to develop student competencies as well. This paper has attempted to seek clarification of entrepreneurial competencies of principal's influence on entrepreneurship education and efforts to develop student competencies.

### *2.2.2. Entrepreneurship Training*

Entrepreneurship education is learning that is set in a structured and systematic manner that includes theory and practice. In addition, entrepreneurship education is often accompanied by the implementation of training activities in the form of special programs, which are designed to increase knowledge and ability to apply entrepreneurial values. Entrepreneurial learning is supported by training activities in the form of specific and practical program concepts with the aim of providing entrepreneurial knowledge, understanding, and skills. For example, it is in the form of knowledge / types of businesses, creativity and strategies to utilize local potential, managerial understanding, sources of capital assistance, and marketing orientation.

Entrepreneurship training is an effort to facilitate students with amenities, train them and build a confidence to anticipate failure but remain committed to their business to achieve success. [Aditya, Utami, and Ruhana \(2015\)](#); [Anggraeni and Nurcaya \(2016\)](#); [Adnyana and Purnami \(2016\)](#) suggested that entrepreneurship training had a positive effect on entrepreneurial desires after completing education. Various forms of entrepreneurship training can be given by schools to students, including: management and organization training, leadership training, local potential-based business determination training; teaching factories, fostering business partnership relationships, apprenticeships, production marketing, public services, and others ([Cahyani, Timan, & Sultoni, 2019](#); [Faizin, 2017](#); [Hakim, 2010](#); [Handayani, Mundilarno, & Mariah, 2018](#); [Kuswantoro, Widodo, & Kuswardinah, 2012](#); [Mulyadi, 2011](#); [Santosa, 2018](#); [Siswanto, 2015](#)).

### *2.2.3. Participation of Business and Industrial Sectors*

Entrepreneurship education often involves parties outside the school in the form of participation of businesses and industrial sectors. In simple terms participation is defined as a person's mental and emotional involvement to support the achievement of certain goals and to take responsibility in them ([Bianchini & Verhangen, 2016](#); [Davis, 2008](#); [Huneryear & Hecman, 2009](#)). Participation is awareness, attitudes, and behavior of business actors to take responsibility and contribute voluntarily, and support the school to establish entrepreneurial competence of the students. Participation is also carried out through various forms of cooperation between school, business and industry. The goal is to provide supplies and student interest in entrepreneurship after completing education at the secondary level and do not continue their education. Forms of cooperation and participation of businesses and industries include training / internship to enhance students' knowledge and business skills, management training and organization, introduction of regulations and capital assistance, industrial visits, provision of experts, utilization and prospects of local potential, forms of production, knowledge and use of the means of production, marketing systems of production, risk management, and so on ([Azizah & Khairuddin., 2015](#); [Delina, 2018](#); [Indriaturrahmi & Sudiyatno, 2016](#); [Mulyadi, 2011](#); [Subiyanto, 2012](#)).

#### 2.2.4. Student Learning Collaboration

Entrepreneurship learning in schools does not only focus on individual students, but also groups of students to collaborate to share knowledge, be creative in carrying out business activities, take responsibility, and strive to achieve common goals. Collaborative learning is cooperation in carrying out an activity or work for a common goal (Lie, 2007; Roucek & Warren, 2017; Slavin, 1995). Through collaborative learning, entrepreneurship theory and practice are provided in order to foster creative understanding and behavior, critical thinking, and student group collaboration to run a form of business. It is hoped that collaboration can foster a joint venture mentality after completing education later.

Apriono (2013) suggests collaborative fostering means implementing togetherness which makes it easier to develop skills and solve shared problems. Suryani (n.d) argues, collaborative learning is more moving or encouraging students to be active, interactive, and collaborative which is useful for arousing empathy for differences, responsibilities, achieving shared goals, finding solutions, shared views, and interdependence. Nisa, Disman, and Dahlan (2018) suggested collaborative learning can encourage students to think analytically, and become skilled in solving real-world problems. Hariyanto (2014) and Putri, Megasari, Rahmawati, and Munir (2018) suggested the implementation of collaborative learning is able to produce competence, actualization of character, creativity, and student entrepreneurial innovation.

#### 2.2.5. Development of Student Entrepreneurship Competencies

Entrepreneurship education aims to develop students' competencies. Learning theories and practices obtained are expected to foster creativity and innovation for entrepreneurship after completing their education at the secondary level (vocational school). Clutterbuck (2001); Robbins (2007); Wibowo (2017) assert that competence is the ability or capacity of a person to perform a task or job that is determined by factors of knowledge and work skills. Implicit entrepreneurship education builds students' entrepreneurial knowledge and skills as a result of their creativity and innovation through the utilization of local potential, business cooperation, and others.

At the same time, experts believe that entrepreneurial competencies need to be followed by a number of characteristics of business behavior to achieve success. These characteristics include: self confidence, initiative, task and outcome oriented, risk taking, leadership behavior, forward oriented, disciplined, working together, fostering good relations, openly learning new things, utilizing science and technology, positive thinking, increase added value, be creative and innovative to make changes, be sensitive to the environment, seek information continuously, and others (Baporikar, 2016; Bev, 2014; Hisrich, Peters, & Shepherd, 2009; G. G. Meredith, 1992; Grant. G. Meredith, Meredith, Nelson, & Neck, 1982; Ozaralli & Rivenburgh, 2016). Entrepreneurship education therefore aims to develop student competencies with the hope of realizing and avoiding falling as unemployment.

#### 2.3. Theoretical Framework and Hypothesis

The description above shows that entrepreneurship education aims to develop student competencies. However, entrepreneurship education is thought to be influenced by various external factors, including: principals' entrepreneurial competence, entrepreneurship training, and the participation of business and industrial actors. On that basis, the theoretical study framework is constructed as follows (Figure 1).

Hypothesis:

- *PEC, ETR, and BIP have an influence on EED, SLC, and SECD.*
- *EED and SLC have an influence on SECD.*

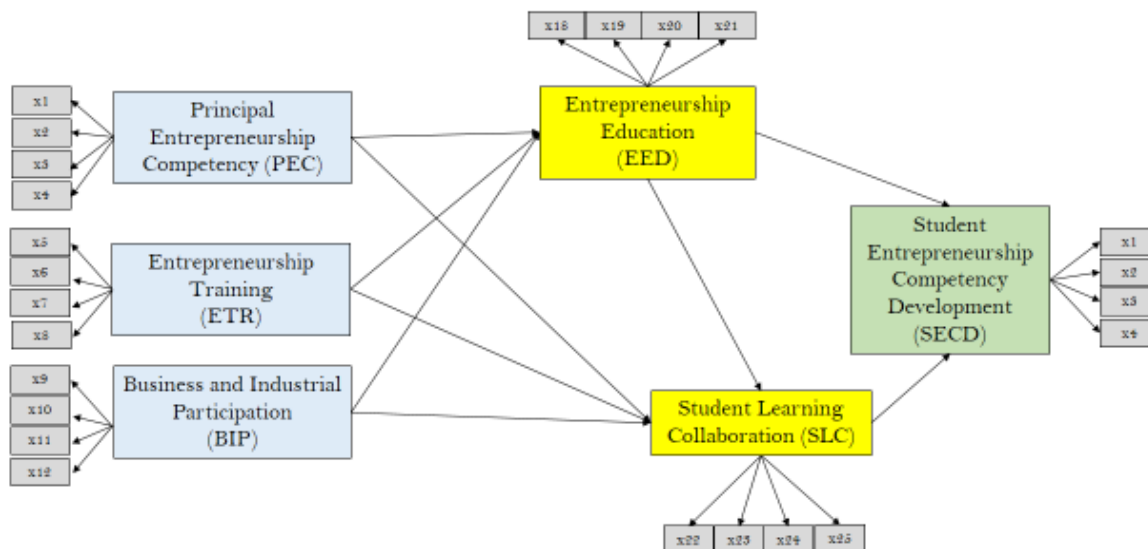


Figure-1. Theoretical Framework Factors influencing the development of entrepreneurship competency in vocational high school students (SMK): a case study

### 3. METHODOLOGY

This paper is the result of a study on entrepreneurship education in vocational high schools (SMK) in the area of East Jakarta City - DKI Jakarta Province, Bogor District and Karawang Regency - West Java Province, and Tangerang City - Banten Province. From these four locations, 3 (three) vocational high schools were taken (2 are public and 1 are private), making a total of 12 schools. Furthermore, 25 students from class XI were obtained from each school as samples through a random technique. The total sample planned was 300 students. Data collection was carried out through the distribution of questionnaires to students, supported by interviews with Principals and Teachers in the sampled schools. The questionnaire was previously tested to determine its validity and reliability by using the product moment test from Pearson and Cronbach Alpha with the help of SPSS 24.0 version. The minimum validity criteria for validity tests is  $= 0.361$ , and the reliability test is  $\geq 0.6$  (Soegiyono., 2010). Only question items that were proven to be valid and reliable were used in field research. The study findings also display the results of Confirmatory Factors Analysis (CFA) validity and reliability of indicators for each variable.

The data was analyzed using Structural Equation Modeling (SEM) with the help of Lisrel 8.70 program. The SEM program was chosen because the number of samples met the minimum requirements of 100 respondents (Hair, William, Black Ba, & Babin, 2010; Kusenendi, 2009).

### 4. FINDINGS

#### 4.1. Characteristic of Respondents

A total of 247 questionnaires were received back, consisting of 106 (42,91%) from female and 141 (57.09%) from male respondents. The majority (74.90%) of the respondents answered that they wanted to work after graduation, 12.15% answered that they wanted to work while studying, self-employed 2.43%, and 12.95% did not know yet. Almost all respondents said that the motivation to enter vocational school was because they came from low-income families, and they could not afford relatively expensive tuition fees, and wanted to earn money to help families.



Table-1. Sample Respondents Students (N =247).

No.	Majors Study	SMK Male	Female	Total
1.	Mechanical Engineering	20(8.10)	3(1.21)	23(9.31)
2.	Welding Techniques	8(3.24)	-	8(3.24)
3.	Graphic Design	16(6.48)	5(2.02)	21(8.50)
4.	Graphic Production	9(3.64)	3(1.21)	12(4.85)
5.	Animation and Multimedia	8(3.24)	7(2.83)	15(6.07)
6.	Technical light vehicle	9(3.64)	2(0.81)	11(4.45)
7.	Automotive Body Engineering	10(4.05)	3(1.21)	13(5.26)
8.	Automotive Maintenance Engineering	13(5.26)	2(0.81)	15(6.07)
9.	Refrigeration and Air Conditioning Tech.	10(4.05)	-	10(4.05)
10.	Agribusiness and Agrotechnology Eng.	6(2.43)	6(2.43)	12(4.86)
11.	Business & Management Engineering	6(2.43)	15(6.07)	21(8.50)
12.	Hospitality Engineering	8(3.24)	14(5.67)	22(8.91)
13.	Tourism	5(2.02)	12(4.86)	17(6.88)
14.	Office administration	4(1.62)	8(3.24)	12(4.86)
15.	Cullinary art	3(1.21)	10(4.05)	13(5.26)
16.	Fashion	2(0.81)	10(4.05)	12(4.86)
17.	Health and Social Work	4(1.62)	4(1.62)	8(3.24)
	Total	141(57.09)	106(42.91)	247 (100,00)

The majority (70.39%) of respondents answered that they were still not interested in doing business after leaving school for having no talent; 13.59% answered that they were interested to become entrepreneurs, while 16.02% accepted that they did not know. However, the students said that they did not rule out the possibility of future entry into the field of entrepreneurship, especially when faced with the difficulty to get a job, both in public and private sectors. They also believed that entrepreneurship education could provide knowledge, skills and benefits in future to support their lives.

#### 4.2. Confirmatory Factors Analysis (CFA)

Confirmatory Factor Analysis (CFA) is one of the widely used validity and reliability tests. CFA is used to test unidimensional, validity and reliability of such constructs in measurement models that cannot be measured directly. These constructs are called descriptive measurement theory models or confirmatory factor models that show the operationalization of variables or research constructs into measurable indicators formulated in the form of equations and / or specific path charts (Joreskog and Sorborn (1993); Ferdinand (2002); Kusnendi (2009); Hair et al. (2010); Haryono and Wardoyo (2017); Sarjono and Yulainita (2019)). The purpose of the CFA is to confirm or test the model, which is a measurement model whose formulation is derived from theory. CFA can be said to have two focuses, namely: indicators that are conceptualized and are uni-dimensionally precise and consistent; second, the dominant indicators that make up the constructs under study.

##### 4.2.1. CFA (Validity and Reliability)

The CFA is required to be implemented as a test of validity to determine whether the indicator variable actually forms the latent variable (Hair et al., 2010; Haryono & Wardoyo, 2017). The validity test is related to the measurement of variables to examine whether they are valid or not. The validity test is done by comparing the loading factor to a minimum of 0.5. If the load factor value is greater than 0.5 then the indicator is valid. Reliability tests show how well the gauge can produce relatively similar results if measurements are repeated on the same object. Reliability values are measured with Construct Reliability (CR) and Variance Extract (VE). It is said to be reliable if CR has values > 0.70 and VE > 0.50. Table 2 shows the validity and reliability test results.

Error measurement is intended to overcome the effect of parameter estimators and large or small size variances providing that the higher is the loading factor value, the smaller is the error value. This indicates that the indicator

truly reflects the latent variable. Below are shown the results of validity and reliability of indicators of each variable studied (Table 2).

Table-2. Validity and reliability results.

Variables	Indicators	SLF	ei	CR	VE	Conclusion
PEC	x1 = Entrepreneurial vision	0.74	0.45			
	x2 = Infrastructure support	0.79	0.38	0.8805	0.6514	Valid &
	x3 = School economic activity	0.96	0.07			Reliable
	x4 = External collaboration	0.71	0.49			
ETR	x5 = Management training	0.81	0.34			
	x6 = Office administration	0.93	0.14	0.8565	0.6036	Valid &
	x7 = Production training	0.64	0.60			Reliable
	x8 = Marketing training	0.70	0.51			
BIP	x9 = Business capital assistance	0.93	0.13			
	x10 = Expert support	0.84	0.29	0.9225	0.7492	Valid &
	x11 = Facilities support	0.89	0.20			Reliable
	x12 = Teaching factory	0.79	0.38			
EED	x13 = Learning integration (holistic)	0.77	0.41			
	x14 = Teacher competence	0.76	0.42	0.9011	0.6965	Valid &
	x15 = Workshop and practice	0.85	0.27			Reliable
	x16 = Curriculum support	0.94	0.11			
SLC	x17 = Utilization of local potential	0.82	0.33			
	x18 = Student grouping	0.80	0.35	0.9206	0.7445	Valid &
	x19 = Learning problem solving	0.87	0.24			Reliable
	x20 = Marketing prospects	0.95	0.10			
SECD	x21 = Future orientation	0.95	0.10			
	x22 = Entrepreneurial capacity	0.89	0.20	0.9655	0.8750	Valid &
	x23 = Entrepreneurial interest	0.95	0.10			Reliable
	x24 = Entrepreneurial Character	0.95	0.10			

#### 4.2.2. Goodness of Fit (GOF) Models

Structural model analysis in SEM begins by testing the overall suitability of the model based on the Goodness-of-Fit (GFI) statistical indicators of the LISREL output (Hair et al., 2010). Overall, a summary of the critical value of the model match testing can be seen in the summary (Table 3) showing all indicators of the SEM model whether Fit or good.

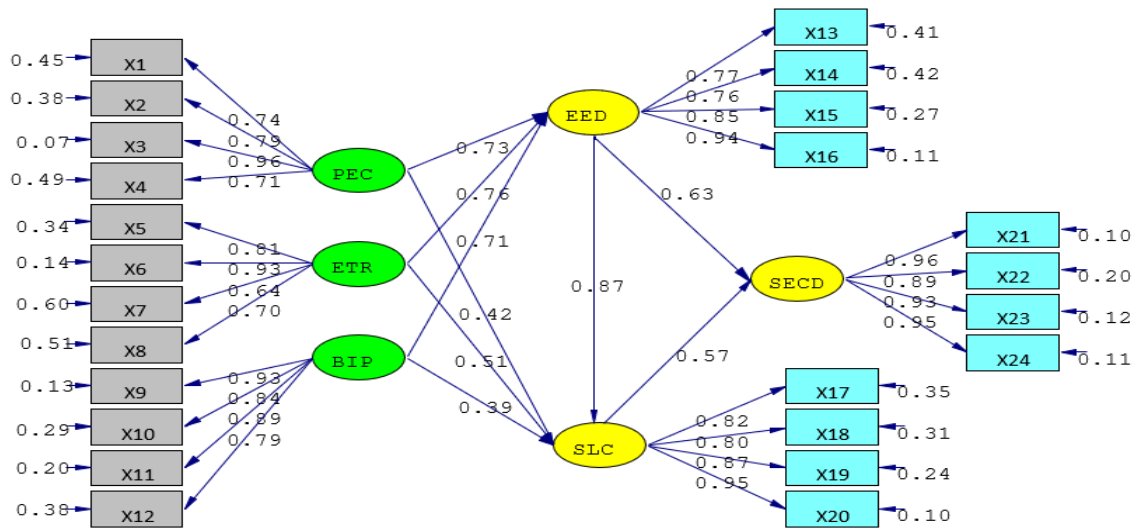
Table-3. GOF Models.

Goodness-of-Fit	Cutt-off-Value	Results	Conclusion
RMR(Root Mean Square Residual)	$\leq 0,05$ atau $\leq 0,1$	0.01125	Good Fit
RMSEA(Root Mean square Error of Approximation)	$\leq 0,08$	0.01287	Good Fit
P-value	$\geq 0,05$	0.082391	Good Fit
GFI(Goodness of Fit)	$\geq 0,90$	0.98	Good Fit
AGFI(Adjusted Goodness of Fit Index)	$\geq 0,90$	0.96	Good Fit
CFI (Comparative Fit Index)	$\geq 0,90$	0.94	Good Fit
Normed Fit Index (NFI)	$\geq 0,90$	0.95	Good Fit
Non-Normed Fit Index (NNFI)	$\geq 0,90$	0.95	Good Fit
Incremental Fit Index (IFI)	$\geq 0,90$	0.96	Good Fit
Relative Fit Index (RFI)	$\geq 0,90$	0.97	Good Fit



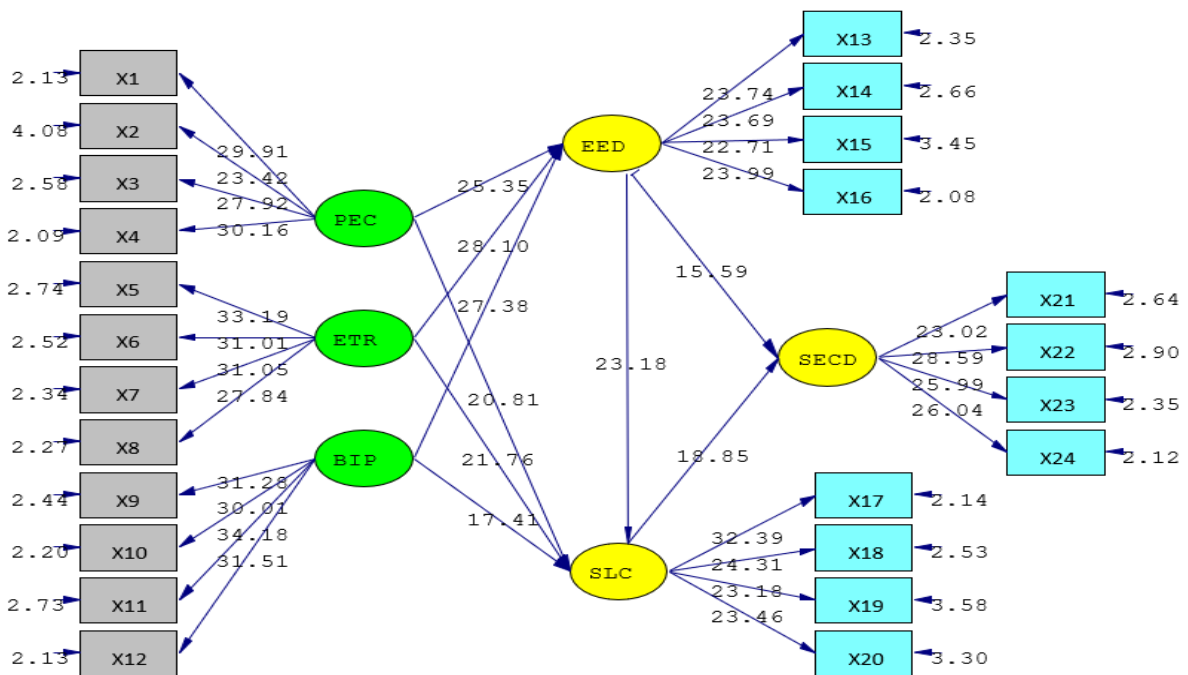
4.2.3. Structural Equation Results

Data processing using the help of the Lisrel 8.70 program produces a structural model of the variables and indicators studied, as follows.



Chi-Square=21.37, df=23, P-value=0.082391, RMSEA=0.01287

Figure-2. Standardized loading factor.



Chi-Square=21.37, df=23, P-value=0.082391, RMSEA=0.01287

Figure-3. T-Count.

On the basis of the results of Figure 2 and Figure 3, the hypothesis test results are obtained, as shown in Table 4.

Table-4. Hypothesis test results

Hypothesis	Coefficient	T-Count	Conclusion
PEC → EED	0.73	25.35	Significant
ETR → EED	0.76	28.10	Significant
BIP → EED	0.71	27.38	Significant
PEC → SLC	0.42	20.81	Significant
ETR → SLC	0.51	21.76	Significant
BIP → SLC	0.39	17.41	Significant
EED → SLC	0.87	23.18	Significant
EED → SECD	0.63	15.59	Significant
SLC → SECD	0.57	18.85	Significant

Table 4 shows that the exogenous variables PEC, ETR, and BIP have a significant influence on EED and SLC as endogenous variables. Furthermore, PEC and ETR act as exogenous variables that have a significant influence on SECD as endogenous variables. It is confirmed that all the variables that are the focus of study has an influence on the development of entrepreneurial competencies of students, so it cannot be ignored in the implementation of entrepreneurship education in schools.

## 5. DISCUSSION

Based on the results of structural testing Figure 2 the relationship can be seen between indicators and the variables studied. The aim is to find out how the contribution value of the indicators contained in each variable was used. The results of the relationship of indicators to their variables are shown in Table 5.

Table-5. Relationship of indicators in variables.

Variables	Indicators	Loading value	Construct Coef.	Contribution
Principal Entrepreneurship Competency (PEC)	x1 = Entrepreneurial vision	0.45	0.74	0.3330
	x2 = Infrastructure support	0.38	0.79	0.3002
	x3 = School economic activity	0.07	0.96	0.0672
	x4 = External collaboration	0.49	0.71	0.3479
Entrepreneurship Training (ETR)	x5 = Management training	0.34	0.81	0.2754
	x6 = Office administration	0.14	0.93	0.1134
	x7 = Production training	0.60	0.64	0.3840
	x8 = Marketing training	0.51	0.70	0.3570
Business and Industrial Participation (BIP)	x9 = Business capital assistance	0.13	0.93	0.1274
	x10 = Expert support	0.29	0.84	0.2436
	x11 = Facilities support	0.20	0.89	0.1780
	x12 = Teaching factory	0.38	0.79	0.3002
Entrepreneurship Education (EED)	x13 = Learning integration (holistic)	0.41	0.77	0.3157
	x14 = Teacher competence	0.42	0.76	0.3192
	x15 = Workshop and practice	0.27	0.85	0.2295
	x16 = Curriculum support	0.11	0.94	0.1034
Student Learning Collaboration (SLC)	x17 = Utilization of local potential	0.35	0.82	0.2870
	x18 = Student grouping	0.31	0.80	0.2480
	x19 = Learning problem solving	0.24	0.87	0.2088
	x20 = Marketing prospects	0.10	0.95	0.0950
Student Entrepreneurship Competency Student (SECD)	x21 = Future orientation	0.10	0.96	0.0960
	x22 = Entrepreneurial capacity	0.20	0.89	0.1780
	x23 = Entrepreneurial interest	0.12	0.93	0.1116
	x24 = Entrepreneurial character	0.11	0.95	0.1045

Table 4 shows that all exogenous variables have a positive effect on endogenous variables. Exogenous variables PEC<sub>1</sub>, ETR, and BIP (Entrepreneurship Competency of Principals, Entrepreneurship Training, and Business and Industry Actor Participation) have an influence on endogenous variables EED (Entrepreneurship Education) and

SLC (Student Learning Collaboration), and EED and SLC play an exogenous variable which gives a positive influence on the endogenous variable SECD (Student Entrepreneurship Competency Development).

In the Principal Entrepreneurship Competency variable (PEC), the external cooperation indicator (x4) contributes the highest value of 0.3479, followed by the entrepreneurial vision indicator (x1) of 0.3330, the indicator of infrastructure support (x2) of 0.3002, and finally school economic activity indicators (x3) of 0.0672. Students tend to see it from a practical point of view, where external collaboration (especially with business and industry), is seen as a major aspect that needs to be applied by the principal, supported by a strong entrepreneurial vision. Students also tend to think that school principals need to provide supporting infrastructure in entrepreneurship education, otherwise they do not give an appreciation of economic activities in schools (eg School Cooperatives). The latter is because students are less involved in economic activities of the school, including only a small group of school employees (usually the principal, deputy headmaster, teachers, and other administrative staff).

In the Entrepreneurship Training variable (ETR), production training indicators (x7) give the highest value of 0.3840, followed by marketing training indicators (x8) of 0.3570, management training indicators (x5) of 0.2574, and office administration indicators (x6) of 0.1134. These results indicate that students prefer to receive training on the production of goods / services in entrepreneurship education along with marketing methods and strategies, then management and office administration skills. If they are involved in entrepreneurship later in life and cannot work in the formal sector, it is hoped that production skills (goods / services) are useful as a basis for entrepreneurship and life support. [Karwati \(2013\)](#) and [Christanti \(2016\)](#) for example, show that production training has a positive impact on entrepreneurial attention and the rise of the home industry. [Firmansyah \(2015\)](#) and [Boer, Wibowo, and Arsyad \(2019\)](#) point out the importance of marketing education in enhancing entrepreneurial skills. Management and office training are not considered unimportant, maybe the answers some students can represent, because they have not been able to imagine the business scale that will be realized later.

In the Business and Industry Participation variable (BIP), the teaching factory indicator (x12) gives the highest value of 0.3002, followed by an expert support indicator (x10) of 0.2456, facility support indicator (x11) of 0.1780, and finally indicator capital assistance (x9) of 0.1274. The teaching factory that was carried out 10 years ago is a learning model to empower vocational schools by developing school collaboration with the business and industry world Directorate of PSMK, 2015. Teaching factory shows that students occupy the main position as an actual learning concept to increase relevance and strengthen their skills and develop entrepreneurial competencies prior to entering the job market. Students tend to think that through the implementation of teaching factory will produce skills that will create job opportunities. This is also in line with the opinions of [Zainudin \(2012\)](#); [Yunanto \(2016\)](#); [Mustari and Suprpto \(2017\)](#); [Arifman \(2017\)](#); [Perdana \(2019\)](#) that the application of teaching factories contributes to increasing knowledge, abilities, experience, discipline, in entering the world of work and independence creating employment. Other trainings deemed important by students are facility support, training / internships, and support from experts from the business and industry world.

Teacher competency (x14) is another indicator that contributes the highest value to the entrepreneurship education variable (EED) of 0.3192, followed by learning integration (x13) of 0.3157, workshop and practice indicators (x15) of 0.2295, and finally curriculum support indicators (x16) of 0.1034. These results appear that students place strong teacher competencies in entrepreneurship education, especially in carrying out intra and extracurricular learning in an integrative and systematic manner, and are supported by activities in the form of workshops, field practices, visits to business and industry, and others. The curriculum, although it contains teaching material on entrepreneurship education, is placed in the last position, because students prioritize practical learning. [Annisah \(2013\)](#) and [Supardi, Sojanah, and Adman \(2017\)](#) show the influence of pedagogical and professional competence on students' entrepreneurial knowledge and motivation. [Darmi \(2015\)](#) argues that productive teacher competencies have a positive effect on students' entrepreneurial attitudes. Indeed, teachers will be hampered from implementing quality learning, if not accompanied by having sufficient competence, both to integrate teaching

materials, determine learning practices that will be provided, utilize learning methods and media, etc. (Agung (2014); Agung (2017)).

Entrepreneurial learning is aimed at students individually, but it can also be implemented in groups where students collaborate to be creative and think critically, to discuss and solve problems related to certain forms of business. Students organize together in groups, understand and hone skills about the process of producing certain goods / services, manage them, and market them. Collaborative learning by students can be a way of entrepreneurship education that can be well received, foster interest, and can be the basis for realizing it after finishing school later. Apriono (2013) argues that collaborative learning can build togetherness and collaboration skills. Putri et al. (2018) show that collaborative learning can build character that is creative, innovative, and entrepreneurial passion.

This study shows that the local potential utilization indicator (x17) contributes the highest value to the Student Learning Collaboration variable (SLC) of 0.2870, followed by the student grouping indicator (x18) of 0.2480, the indicator of learning problem solving (x19) of 0.2088, and finally the combined business orientation indicator after graduating from school (x20) of 0.0950. These results indicate that in entrepreneurial collaborative learning, efforts to exploit local potential are the strongest indicators of student interest, sought and found as a source of business, and joint problem solving. Dinasari, Saroh, and Sumartono (2018) shows the use of local potential provides motivation, enthusiasm, and opportunities for students to become entrepreneurs. But whether it will be the orientation of joint efforts after completing education, students have not confirmed and placed it in the lowest position.

In the Student Entrepreneurship Competency Development variable (SECD), the indicator that gave the highest contribution was entrepreneurial capacity (x22) of 0.1780, followed by an indicator of entrepreneurial interest (x23) of 0.1116, an indicator of entrepreneurial character (x24) of 0.1045, and finally the future orientation indicator (x21) of 0.0960. These results indicate that basically the students vocational high schools studied acknowledged that entrepreneurship education increases capacity in knowledge and skills about entrepreneurship, fosters interest, builds character about the importance of initiative, creative, hard work, discipline, has future plans, the courage to take risks, etc., but they have not been proposed as a future orientation. Sulistyowati, Utomo, and Sugeng (2016) show that entrepreneurial learning has a significant influence on students' entrepreneurial motivation and interest. Isrososiawan (2013) asserts that entrepreneurship education is also able to instill the character of such students who are creative, innovative, hardworking, and possess competitive ability.

## 6. CONCLUSION

Entrepreneurship education (EED) in vocational high school positively affects collaborative learning (SLC) and the development of entrepreneurial competencies of students (SECD). But entrepreneurship education itself is influenced by a number of factors, including: principals' entrepreneurial competence (PEC), entrepreneurship training (ETR), and the participation of business and industrial actors (BIP). The problem that is still faced is how to arouse students' interest in making the field of entrepreneurship the foundation of life after completing their education. Students no longer expect to get jobs from the formal sector (government and private), but are independent, creative, innovative, and initiatives to create jobs from the entrepreneurial sector. For this reason, entrepreneurship education is needed by paying attention to and emphasizing the strength of the indicators of each variable found in this study.

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