

Development of Entrepreneurship Education Model to Create Vocational School Students' Entrepreneur Competency

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Abstract: *The study aimed at finding teaching model and material of entrepreneurship which can create entrepreneurship competency of vocational school students, teaching strategy which can improve entrepreneurship competency, and finding out the knowledge and attitude of entrepreneurship. The population was all Public Vocational Schools (SMK Negeri) in Medan. The target population was students, teachers, and companies and industries having dual system (DS) with SMK using purposive random sampling. Try-out of the entrepreneurship module was conducted at SMK Negeri 3 Medan, SMK Negeri 5 Medan, and SMK Negeri Lubuk Pakam. Research and development design was applied to reach the aim of the research. The instruments were questionnaire, document study, and test. The data were analyzed with descriptive technique, regression, and t-test. The result showed that entrepreneurship competency could be intervened through integrated activities in Production Unit, DS and entrepreneurship practicum. The teaching strategies applied the use of competency-based module. The data analysis found that before the teaching model was implemented, the students' knowledge of entrepreneurship was low and their attitude of entrepreneurship was high. It was found that there was relationship between knowledge of entrepreneurship and attitude of entrepreneurship. The finding revealed that the application of entrepreneurship module teaching was more effectively used to improve entrepreneurship competency compared with conventional teaching.*

Keywords: Entrepreneurship, Teaching Model, Teaching Strategy

1. Introduction

Indonesian government and stake-holders paid seriously attention to improve the quality of education particularly Vocational School (VS) so that the gap between supply and demand was close, mainly in fulfilling the quality of labors. It is also supported by the Indonesian government's policy about the link and match between the educational institution and company and industry. In 2010 Indonesian government expected that the growth of VHS and General Senior High School (GSHS) was 50:50, and in 2015 the ratio between VHS and GSHS will become 70:30 (Depdiknas, 2009).

However, there were a lot of critics on VHS because the users felt unsure of the VHS graduates' not ready to use skills and the graduates could not compete with the technology speed (Sibuea, 2002). The long economy crisis, the limitation of work field, and the high speed of company and industry have also affected greatly on the tight competition among the VHS graduates to get a job in North Sumatera if they only depend on the available resources. The fact that many graduates could not work because they did not have relevant skills to the field work and many companies and industries collapsed due to the economy crisis resulted in very tight competition. Therefore, the government and stake-holders paid seriously attention to improve the students' skills in order to match the job need and the graduates can run a business by themselves. The Indonesian ministry of education and culture intensifies more on the entrepreneurship subject to prepare the students' competency to run their own business on the basis of the entrepreneurship principles.

Regarding the entrepreneurship Kalla (2011) reminded the Indonesian young generation to think not only to be a governmental civil service but also to be an entrepreneur.

Consequently, the attitude and spirit of entrepreneurship has been very important set on the young generation, students, university students and its alumni. Their spirit should be led to start running a business, not only as job seekers, but they should think to be job creators. Dealing with this, it is important to find entrepreneurship teaching model, competency and teaching material to raise both the entrepreneurship soul and to improve students' entrepreneurship competency.

For a developing country the role of labors having good entrepreneurship performance cannot be disregarded. A nation will develop faster if it has human resources having entrepreneurship attitude that can create and produce optimal innovations into reality in their business. Rostow states that to reach take-off needs successful activities from several society groups which are called entrepreneurship. According to McClelland (in Cahyono, 1993) entrepreneurship attitude should have need for achievement. The word entrepreneurship derives from French. Richard Cantillon is the first person who used the term. In his book "Essai sur la nature do commerce" he interprets that 'entrepreneur' is someone who buys production tools with special price for the purpose of creating products which will be offered based on an unpredictable price by the time of production cost spent (in Makaliwe, 1987).

In addition to the quality and relevance of SMK with field works, entrepreneurship competency is significantly needed so that the students have competency and enthusiastic to run their own business; hence, there must be solutions for it. It means that students' entrepreneurship soul and competency should be raised so that they are able to run their own business and employment for others. As a result, a relevant model is needed to be applied in order that the learning mechanism which can raise both the entrepreneurship

competency and make students able to run their own business. The learning model should apply entertainingly effective and efficient school and company survey-based learning strategy.

2. Method

The research was conducted in all SMK in Medan the subjects of which were students, teachers, and industry employers taken by using purposive random sampling. The samples of SMK were majoring in technology, business, home-industry and tourism as many as 88 students and 45 teachers teaching entrepreneurship.

The data were collected from SMK Negeri 1, SMK Negeri 2, SMK Negeri 3, SMK Negeri 4, SMK Negeri 5, SMK Negeri 7, SMK Negeri 8, SMK 10, and SMK Lubuk Pakam. The data were also obtained from 17 staffs each of whom worked in either company or industry, such as: PT Astra International, PT Auto 2000, PT Carrefour Indonesia Medan, PT Gremi Utama Lestari, PT Saroha, CV Putra Pratama, Asean International Hotel Medan, Hotel Grand Antares, Hotel Novotel Sochi International Medan, Sonky Elektronik Servis, PT Auto 2000, Baristand Medan, Bengkel Sehat, Indo Marco Prismatama, and UD. Waldy.

The learning model was analyzed, and need analysis on the company and industry was also analyzed to find the significant competency and entrepreneurship learning materials. The data for learning materials development were obtained from survey to the companies and industries. The result from the first phase was the SMK learning model which can improve entrepreneurship competency by finding the competency to enable the SMK students to run a business, finding the entrepreneurship learning materials, finding effective learning strategy, and developing competency-based training, developing entrepreneurship competency-based module, finding the proper implementation of dual-system education model to improve entrepreneurship competency, and finding a suitable model to develop students' entrepreneurship spirit.

Descriptive and inferential analyses were applied for the survey data. Content analysis was used to find the competency and materials relevant to the field work for facilitating the students to have comprehensive entrepreneurship competency.

3. Result

The result showed that entrepreneurship competencies which should be taught at vocational schools among others: entrepreneurship behavior, applying achievement working behavior, identifying entrepreneurship attitude and behavior, applying attitude and behavior, building commitment to the entrepreneurs, decision-making, planning micro small business, managing business, etc. Providing entrepreneurship competency to the students was not training similar to the entrepreneurs, but it was a kind of guiding and training business and pre-business models. In pre-business concept the students are trained to develop totally their entrepreneurship potential. It does not mean that in pre-business every student was trained to be entrepreneur,

but they are taught or trained about entrepreneurship mental, attitude, understanding, knowledge, and various sufficient resources.

The entrepreneurship learning model developed was an integrated model, activities which can both give entrepreneurship learning and apply it. There were four activities which covered entrepreneurship: 1) entrepreneurship subject is taught every semester, 2) dual system education is offered in semester 5 or 6, 3) production unit activity is taught every semester and (4) practice of entrepreneurship activity.

Through entrepreneurship subject the students can get the knowledge and skills related to entrepreneurship activities. Besides, entrepreneurship competency can be taught in DSE activities. DSE is vocational education pattern of which the planning and implementation are realized by corporation between school and companies or industries, and the program is carried out partly at school and partly at the companies or industries. Thus, the program can be carried out at both places with school-based learning and work-based learning. It means that there are two institutions, school and company/industry, conducting the program using the same curriculum. Both institutions are responsible for all the program, starting from planning, implementing until deciding the student's graduation, and employing the graduates.

Besides through entrepreneurship subject and DSE activities, to improve student's entrepreneurship competency can be mediated in production unit activities. Production unit could be used as a media for learning while working (learning-by-doing) for students in SMK because economic activities unit of production produce goods oriented market. Thus, the unit of production activity could give the learning process that necessary in jobs for them. Besides that, unit of production can give guidelines and encouragement confident for students, that expertise they skills are something that has adequate to produce money. The important things is the involvement of students in activities aimed at the production units should provide provision for the students gain expertise in production management from production to marketing, but that the other thing that should be emphasized is to increase the competence of students in entrepreneurship. Entrepreneurship competence can also be obtained when students practice entrepreneurship activities which performed in school. These activities are typically conducted at the end of the semester by involving industry / business.

Learning strategy which was applied is a learning module based on competence. Based on the data obtained, the industry believes that entrepreneurship competencies will increase when applied strategies can introduce a real entrepreneurship activity and apply learning strategies oriented to students. In this study the learning material is packaged in a module. According to Finch and Crunkilton (1979) some of the characteristics of the module are used in the process of learning or training, among others, are: (1) a self-contained module, (2) the modules can be used individually, (3) module is a complete package, (4) module includes learning objectives and learning experiences, and

(5) module includes an assessment of the extent to which objectives have been achieved by the students.

Based on the analysis of data that the students' attitude in entrepreneurship is high, and the students' entrepreneurship knowledge is low. This things show that there is a tendency for students to work on their own and even open for another job soon after graduating from vocational school (SMK), though on the other hand knowledge of entrepreneurship of students is still relatively low due to the possibility of new students entering vocational schools so that knowledge and information about entrepreneurship that students achieved still low.

From the analysis of the data found that the magnitude of the correlation coefficient between entrepreneurship knowledge in entrepreneurship attitude is 0.83 which is significant at $p = 0.05$. This means that increasing of students' knowledge of the entrepreneurship attitude of in entrepreneurship will increase as well. From the results of the regression analysis of attitudinal variables on knowledge entrepreneurship in entrepreneurship intercept constants obtained at 70.90 and the price of the regression coefficient of 0.77. Thus the regression equation is: $Y = 70.90 + 0.77 X$ significant at $p = 0.01$. Summary results of the regression analysis are shown in Table 1.

Table 1: Summary of Regression Analysis Variables between Entrepreneurship Knowledge and Entrepreneurship Attitude

Variation Source (VS)	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Squares (MS)	F	F p = 0.05
Regression Residue	7393.82	1	7393.82	75.14	6.96
	8461.95	86	98.39	-	-
Total	15855.77	87	-	-	-

The magnitude of the relationship between entrepreneurship knowledge and entrepreneurship attitude demonstrated a correlation coefficient of 0.68. From the calculation of the correlation coefficient turns significant because $t = 3.72$ while the table = 2.02 at $p = 0.05$. These results indicate that the null hypothesis is thus rejected the hypothesis that there is a relationship between entrepreneurship knowledge with proven entrepreneurship attitude. The form of the regression equation that describes the relationship between entrepreneurship knowledge with entrepreneurship attitude expressed $Y = 70.90 + 0.77 X$. The results of testing the significance of regression coefficients conclude that the null hypothesis is rejected so it can be stated that a significant regression equation. It gives an indication of the higher vocational students entrepreneurship knowledge so the attitude of their entrepreneurship is higher. Regression equation also gives the sense that an increase in one unit of entrepreneurship knowledge will enhance the entrepreneurship attitude of variation of 0.77 units with a constant intercept 70.90.

those taught without using module. The result of t-test analysis is depicted in Table 2.

Table 2: Summary of T-Test of the Students Learning Using Module and without Module

Learning	N	Mean	Standard Deviation	t	dk	p
Using Module	167	17.20	2.65	3.88	340	$p < 0.00$
Without Module	175	15.98	3.16	-	-	-

Moreover, the module was tried out to the big group at 3 SMKs, 2 classes of grade X of SMK Negeri 3 Medan, 2 classes of grade X of SMK Negeri 5 Medan, 2 classes of grade X of SMK Negeri Lubuk Pakam. To know the effectiveness of entrepreneurship module 2 classes of grade X from the 3 schools taught without the module were taken to test the effectiveness of the learning using t-test. The post test given to these big groups was testing the students' entrepreneurship competency followed by testing the group's entrepreneurship competency taught using the module and without using module. The research did not administer pre-test to both groups because they were assumed having the same competencies level for they were newly first year of SMK students.

4. Discussion

The result showed that entrepreneurship competencies which should be taught at vocational schools among others: entrepreneurship behavior, applying achievement working behavior, identifying entrepreneurship attitude and behavior, applying attitude and behavior, building commitment to the entrepreneurs, decision-making, planning micro small business, managing business, evaluating business, etc. The materials of entrepreneurship behavior competency consisted of sub-competencies among others: identifying entrepreneurs' attitude and behavior, deciding achievement working behavior, defining solution, and decision-making. Then, applying achievement working behavior consisted of among others: knowledge of achievement working behavior, ways of building achievement working behavior, and the importance of achievement working behavior. Next, competencies of defining solution covered among others: business problem and business information sources, business evaluation, etc.

The result showed that the mean of the students taught using the module was 17.20 and the mean of those taught without the module was 15.89. The mean of the t-test was the t-value $>$ t-table at $p = 0.01$, meaning that there was different competencies of both groups. It can be concluded that the competency of groups taught using module was higher than

The findings showed that entrepreneurship behavior was very important. This is in line with the opinions of McMillen and Long (1987) stating that the main factor in entrepreneurship education was entrepreneurship attitude. McMillen and Long (1987) affirmed that entrepreneurship education could not be taught like management education because entrepreneurship education was not training people for planning a business, but it was for developing the mind-set and motivation of self-development. It was reasonable enough because giving entrepreneurship competency to the students was not training similar to the entrepreneurs, but it

was a kind of guiding and training business and pre-business models. In pre-business concept the students are trained to develop totally their entrepreneurship potential. It does not mean that in pre-business every student was trained to be entrepreneur, but they are taught or trained about entrepreneurship mental, attitude, comprehension, knowledge, and various sufficient resources.

The entrepreneurship learning model developed was an integrated model, activities which can both give entrepreneurship learning and apply it. There were four activities which covered entrepreneurship: 1) entrepreneurship subject is taught every semester, 2) dual system education is offered in semester 5 or 6, 3) production unit activity is taught every semester and (4) practice of entrepreneurship activity. Material provision of this effort needs coordination between teacher and instructor at the company/industry. PSG as a system to provide education and vocational training, need to be supported by some factors which become its components and as well as its characteristics, namely institutional partner, Educational program and joint training, institutional corporation, added value, sustainability assurance (Vocational Education National Assembly, MPKN, 1996). With this organizer PSG which is expected to realize the existence of components to achieve the level of expertise and professional work attitude. So, various attempts have been made, both the government and private sector and communities to improve the quality of vocational education. That effort includes curriculum adjustments to the working world, teacher capacity building, improvement of infrastructure, improvement of operational funds through a variety of funding sources, and school management improvement.

The utilization of production units in providing the knowledge, skills and competence development is quite reasonable because the entrepreneurial activity of production units can be managed by the school without relating to the program at company/industry. But, it has not been many vocational schools which have held on unit productions well. For obtaining the maximal result, for obtain the unit production need to be formulated that one of the purposes the unit production gives the knowledge and experience to start the effort. So, the unit productions do not provide the experiences to obtain the skills, but also pushing and giving the competence of the students to do effort. By optimizing the function of unit productions, the students can be empowered as the labors so that the students obtain several skills and results. Aside that unit production can be became as the training place for the students who want to obtain the skills as the kind of materials and also how to market it. Through this activity of unit production, the students would be able to increase the competence of entrepreneurship and provide supplies (Sibuea, 2011). This thing is suitable with the result of observation Sutopo (2012) which find that the effectiveness of the vocational education in the unit production will be effective if the activity like habituation in to planning, process of production and implementation of marketing involves many students. Actually, not all of the process of activity of unit production involve the students, for instance, into planning and marketing the production have still been done by the unit production only.

In this research, the material of the vocational lesson will be wrapped into the module form of the lesson. So, the strategy will be applied is the application of module who has the basic of competence. Using the module of the lesson can give the chance to the students to always learn the vocational lesson. It is mainly for the students to do the activities of industry practices who obligate the students to be fixed in the place of company/industry into doing the activity of the lesson itself. Thus, the students can study by themselves, accordance with the advantages of the use of the module. This agrees with the opinions expressed by Finch and Crunkilton (1979) that the teaching modules purpose to run the process of studying well, by giving the chance to study according to the speed of learning owned by each student. The purpose and natural learning with the module is running the process of studying well by giving the helps as well as to the students, thus, efforts to improve the usefulness of the learn can be achieved.

The research found out that there was the relation between the vocational knowledge with the attitudes to entrepreneurship. Magnitude of the relationship between vocational knowledge with the attitudes to entrepreneurship are shown the correlation coefficient 0.68 which be significant at $p = 0.01$. This result shows that null hypothesis is rejected thus the hypothesis that there is the relation between the vocational knowledge with the attitudes of entrepreneurships. The form of the regression equation that describes the relationship between the vocational knowledge with the attitudes of entrepreneurships is revealed $Y = 70.90 + 0.77 X$. The results of testing the significance of regression coefficients conclude that the null hypothesis is rejected so that it can be revealed that the significant regression equation. This gives the higher vocational knowledge indications the SMK students hence it will be higher to the attitudes of entrepreneurships. The regression equation also gives the meaning of the incression a unit of vocational knowledge will increas the various attitudes to entrepreneurship as much as 0.77 unit with the intersep constant 70.90.

The result of the research supported Sibuea's (2002) which revealed that knowlegde of entrepreneurship had the positive relation with the entrepreneurship attitude. This means that in order the students have positive entrepreneurship attitude they should be guided with the entrepreneurship knowledge. This research also in line with Sibuea's finding (1987) exposing that entrepreneurship knowledge affected entrepreneurship attitude of SMK students. So, the knowledege about an object will cause positive or negative feeling which also cause the tendency of behaving so that a certain attitude is built. The finding also corresponded to Ancok's opinion stating that knowledge about a certain benefit will cause someone have positive attitude towards the thing. The advance of business world which is always informed via printed media and electronic can improve society's entrepreneurship attitude. Dealing with entrepreneurship attitude is very important. This is relevant to the opinion of McMillen and Long (1987) stating that the main factor in entrepreneurship education is the entrepreneurship attitude because entrepreneurship education cannot be taught similar to management education (Garnier, Gasse and Raynal, 1991) and entrepreneurship

education is not training people to plan a business but to develop their open-minded and interest of self-development.

In this study entrepreneurship learning materials is packaged in a learning module. Thus, the strategy is the implementation of competency-based modules. Utilizing learning module can provide the opportunity for students to continue studying Entrepreneurship lessons, it is especially when students are doing activities that require Industry Internship students remain in the company/industry in learning activities. Thus, students can learn on their own, according to the benefits of the use of the module. This is consistent with the opinions expressed by Finch and Crunkilton (1979) that the teaching module aims to facilitate the learning process, by providing an opportunity to learn according to the speed of learning possessed by each student. The purpose and nature of teaching the module is to facilitate the learning process by providing the best possible assistance to students, thus efforts to improve the usability of the learning time can be achieved.

In this research, try-out of the learning using entrepreneurship module was carried out to small-scale and large scale groups. In limited try-out involving several students to see the feasibility of the application of the material it was found that using entrepreneurship modules provided higher competencies compared without modules. Then, try-out was conducted to three big groups namely SMK Negeri 3 Medan, SMK 5 Negeri, and SMK Negeri Lubuk Pakam involving 2 classrooms each uses entrepreneurship module that implemented several entrepreneurship modules to students served as the experimental group. At the end of the treatment post test was carried out to determine the students' mastery learning using modules. The result of test of entrepreneurship competence of the experimental group was compared to that of the group who did not use the module, 2 classrooms each from the three SMKs. Both groups had the same learning condition except different learning strategies using module applied to the experimental group while the other group without using module. In the present study the students' initial ability was not tested by the assumption that they had the same competencies level for they were newly first year of SMK students that had not gained a lot of knowledge and information related to entrepreneurship.

Based on the result of the try-out there was significant different entrepreneurship competencies between both groups taught using module and without module. The mean of experimental group was 17.20 and the control group was 15.98. From the results of t-test the t-value was 3.88 significant at $p < 0.01$. This showed that there were different competencies between the groups taught using module and without module. From the result it revealed that learning using entrepreneurship module more effectively improved the entrepreneurship competencies than learning without the module.

5. Conclusions

From the findings several conclusions can be stated as follows:

- 1) The finding showed that entrepreneurship competencies should be given in a vocational school among others entrepreneurship behavior, applying achievement working behavior, identifying entrepreneurship attitude and behavior, applying attitude and behavior, building commitment to the entrepreneurs, decision-making, planning micro small business, managing business, etc.
- 2) Providing entrepreneurship to the students was not training similar to the entrepreneurs, but it was a kind of guiding and training business and pre-business models. In pre-business concept the students are trained to develop totally their entrepreneurship potential. It does not mean that in pre-business every student was trained to be entrepreneur, but they are taught or trained about entrepreneurship mental, attitude, understanding, knowledge, and various sufficient resources.
- 3) Entrepreneurship learning model is a model of integration, meaning that activities that can provide entrepreneurship learning simultaneously applied. There are four events that can simultaneously load entrepreneurship subjects namely (1) Entrepreneurship subjects were given each semester, (2) Dual System of Education (PSG) is given in semester 5 or 6, (3) Unit Production activity that can be given to each the semester, and (4) Activity Entrepreneurship Practice.
- 4) Learning entrepreneurship is taught in the form of learning material module package. Thus entrepreneurship learning strategies conducted by administering competency-based modules, in addition to the implementation of student-oriented learning strategy.
- 5) Based on the data analysis the students' entrepreneurship attitude is high, and the students' entrepreneurship knowledge is low.
- 6) There is a relationship between knowledge of entrepreneurship and students' entrepreneurship attitude.
- 7) The improvement of entrepreneurship competence can be intervened through entrepreneurship lesson in a variety of educational activities including dual system education (DSE), the management of production units (PU), and entrepreneurship practical activities.
- 8) Students' competency taught using entrepreneurship module is higher than those without the module.

6. Suggestions

Based on the findings and conclusions some suggestions are stated as the following:

- 1) Entrepreneurship competencies provided to students should demonstrate competence relevant to the figure of entrepreneur who can be successful in entrepreneurship activities. However, the provision of entrepreneurship training for students is not as a man who had engaged in entrepreneurship, but the form of coaching and training model of entrepreneurship and pre-entrepreneurship. In the pre-entrepreneurship concepts, students are trained to develop their full entrepreneurship potential.
- 2) In order to improve the optimum entrepreneurship competency the provision of entrepreneurship subjects can be done when students do the job-practice in the companies or industries. In addition it can be also intervened in carrying out the production unit and entrepreneurship practice activities.

- 3) In order the entrepreneurship learning can be well managed either when the student was in school or when conducting activities in the companies or industries the application of competency-based module strategy can be applied.
- 4) In order the students have good entrepreneurship attitude it is necessary to consider the entrepreneurship knowledge. Through the students' understanding of entrepreneurship, it will foster a positive attitude towards self-business which in turn will also build good entrepreneurship behavior.
- 5) In order the students' entrepreneurship competencies improved using entrepreneurship modules is considered as an alternative of learning entrepreneurship in vocational schools.

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