Development of Vocational High School based on regional potential

YY Cahyaningrum¹ and Dr. Wagiran²

¹Post-Graduate Programme, Yogyakarta State University, Indonesia
²Post-Graduate Programme, Yogyakarta State University, Indonesia

E-mail: yudhayanticahyaningrum@gmail.com

Abstract. Labor is one of the important factors that driving the economy and regional development. One type of educational institution that prepares prospective, qualified and competitive workforce is vocational high school. The urgency of developing vocational schools based on regional potential is to prepare special-skilled workforce that is in accordance with the demands and needs of the local industry and the potential that exists in the region. Potential-based vocational development in the region can have a positive simultaneous effect on the region, where the unemployment rate can decrease, poverty levels decline, the potential of the processed area optimally, economic growth improves, so that regional development becomes more developed and progressively better. This study aims to analyze 1) approaches and models that are in accordance with the development of vocational high school based on regional potential; 2) steps for developing of vocational high school based on potential region. The method used in this research is literature study. The results of this study are in the form of a theory about the approach, methods and steps of developing vocational high school in accordance with the potential of the region. The results of the study are 1) The approach that is in accordance with the development of regional potential-based vocational high school is an integrated approach that combines aspects of human resources, natural resources, industrial needs and educational equity. The appropriate educational planning model is an improved projection methods with the Delphi methods. 2) Steps for developing of vocational high school based on potential area, namely analysis of potential in the region, analysis of the condition of education, and analysis of the potential of education in the region concerned. Analysis of regional potential includes analysis of economic potential, analysis of natural resources, and analysis of human resources. Analysis of these three potentials using the location quotient method. Analysis of the condition of education is carried out using the principal component analysis method. While the analysis of education potential uses the projection method.

1. Introduction

Regional potential is a local advantage which if exploited properly will have a positive impact on the region. In order to maximize the potential that exists in an area, it is necessary to have workers who have extensive and deep knowledge, good work attitudes and capable skills. One way to get a quality workforce is through education. The education needed is education that is in accordance with the competencies needed to manage and develop regional potential. This education can be obtained through vocational education, which is one form of the program, namely vocational high school.

Specifically, the vocational program is directed to produce productive, competent and professional human resources. Vocational graduates are expected to be able to utilize the region's potential optimally so as to enlarge the regional economic turnaround, increase regional independence and regional development. The urgency of the purpose of the vocational program has consequences, where
the establishment of a vocational school must be based on special reasons. The specific reason for holding a vocational skills program is that one of them is determined by the need for a job market for vocational school graduates. In addition, to establish a vocational program must be adapted to the conditions of the existing area so that later the vocational high school can provide benefits to many parties in the area.

Vocational students are prepared with the skills, knowledge and attitude needed to work, so it is expected that after graduation they can work in their respective fields of expertise. This is contrary to the facts in the field. According to the data from Ministry of Economic Affairs in 2017, it is known that the number of labor force from vocational education is 15.6 million, divided into 12.2 million graduates of vocational schools (78.2%) and 3.4 million (21.8%) graduates of academies / diplomas. Of all the labor forces that have high competence (high school graduates and above), it turns out that vocational high school graduates are the most unemployed workers. It is known that unemployment of SMK graduates is 1.5 million people or 12.5% of the total vocational workforce of the vocational high school. Based on these data it can be concluded that although vocational school graduates are equipped with the competencies needed to work, then they cannot guarantee that they can immediately get a job after graduation.

The number of unemployed with vocational education is influenced by various factors. These factors include: 1) a discrepancy between the competence of vocational graduates and industrial needs; 2) the large number of vocational graduates with certain competencies due to the development of less targeted vocational education and 3) the development of less targeted vocational education systems and facilities (Yulius, 2017). Problems demand to be resolved immediately, given the problem of unemployment can hamper the country’s economy and the achievement of national development.

Vocational high school that based on regional potential is one solution to fix these problems. The development of vocational high schools that refer to industrial needs and regional potential are expected to produce job-ready graduates who have expertise in accordance with the demands and needs of the local industry. If high school graduates can work immediately after completing their study, the problem of unemployment, poverty and other problems related to it can be minimized.

2. The Nature of Vocational Education

According to Evans (1978) vocational education as part of an education system that preparing a person to be able to work in one group of work or one field of work compared to other occupations. This definition implies that each field of study means vocational education, as long as the field of study is studied more deeply than other fields and the depth is intended as someone's provision to entering the working world (Nuruddin, 9: 2016). Meanwhile Byram and Wenrich (1953) argues that vocational education is teaching people how to work effectively. According to Putu Sudira (4-7: 2016) vocational education has the aim of equipping students with various kinds of competencies to get a job or occupation. Vocational education aims to develop someone's vocation so that they have the capability to do certain jobs or positions. Vocations are themselves related to job calls (occupation) or positions with salaries, wages or fees.

Vocational education also as educational designed to develop skills, abilities, understandings, attitudes, workhabbits and appreciation needed by workers to enter and make progress in your on-useful and productive basic employments (American Vocational Association, 1960). This implies that vocational education is designed to develop everything needed by labor to enter certain positions or occupations. The things that are developed are competence, ability, understanding, behavior and work habits. It is expected with the development, workers have high productivity in the field of work they are involved in. Pavlova (2009) argues that vocational education prepares students to work which includes preparing the formation of skills, skills, behavior, attitudes, work habits, and appreciation of
the jobs needed by the community and business/industry. Based on the opinions of experts, thus it can be concluded that vocational education is an education level that prepares students to be able to work effectively and efficiently immediately after completing their studies. In order to achieve this, students are provided with learning that supports the achievement of knowledge, attitudes and skills in accordance with their respective fields of expertise, which will be useful in the workforce later. There are three types of vocational education in Indonesia. All three are polytechnics, vocational training centers and vocational high schools. Because of various limitations, this article will discuss specifically and deeply about vocational high schools as part of vocational education.

3. Vocational High School as a producer for skilled worker that is suitable for the needs of the community and industry

Vocational Schools are senior secondary education institutions. Vocational schools as part of vocational high education have the main goal for preparing special skilled labor who are ready to work. Therefore, the orientation of education in vocational high schools is aimed at graduates who can be marketed in the job market. Vocational high schools produces workers who not only have extensive knowledge, but also have good skills and professional work attitudes. The study in vocational high schools includes the fields of affective, cognitive, and psychomotor. These three aspects are applied during the teaching and learning process in schools and through actual practice field, such as internships, industrial practices and so on.

Learning activities carried out in Vocational High Schools and Senior High Schools has several differences. Senior High school emphasizes on cognitive aspects compared to other aspects, while learning in vocational school emphasizes on mastery of skills that include cognitive and psychomotor aspects. Vocational learning carries the motto “hands on”, which means to be able to master learning in depth and comprehensively, students are not enough just to understand the learning material only conceptually, but also have to practice the learning material repeatedly until proficient. Practical learning can improve student skills for good and professional work attitudes and mentality, that will be needed to work in industry.

Specifically, learning activities carried out in vocational high schools is a competency-based learning that adheres to the principle of complete learning (mastery learning). Mastery learning is learning that requires students to be able to master knowledge, skills and attitude in depth and comprehensively. With this learning, vocational high school student will have deep knowledge of the areas of expertise they have mastered, skills, competent and responsive to the development of science and technology, and have a strong professional and mental work attitude that makes them superior and able to compete with various corners of the world.

To determine success of learning and education in vocational high schools can be measured through two criteria. The first is success at school, where students can achieve certain graduation standards that have been established in various fields of study. The second indicator is the success of students after graduated from vocational high school, which can get a job in accordance with their field of expertise and the performance of vocational graduates after entering the real world of work. To achieve this, the vocational high school have to do several things, including must have sensitivity to the development of the world of work and the advancement of science and technology. Furthermore, vocational high schools needs to have a harmonious relationship with the industry. If the relationship goes well, then the vocational high school could discuss well and depth with the industry regarding the relevance of learning with real demands and needs in the field. In addition, Vocational Schools must
be responsive and proactive to dealing with existing developments and changes both internal and external. Moreover, Vocational high Schools are also required to be more adaptive and flexible, especially for the implementation of learning. The expected things is all student who are produced by vocational schools can really have the specifications needed by the business and industry not only for present day but also for the long term.

4. Urgency of regional-based Vocational High School development potential

Based on opinion from Asmani (2012), one way to become an developed country is by utilizing resources, natural resources and culture itself, so that the state could achieve independence and confidence. The purpose of conducting education based on local excellence is to let students know the superiority of the region where they live, understand various aspects related to excellence and the potential of the region. Furthermore, vocational high school student are able to process resources, are involved in services or other activities related to these advantages so that they could earn income. Vocational graduates are also expected to be able to preserve the culture, traditions and resources that become regional excellence and be able to compete nationally and globally.

One of the steps to developing a vocational school based on regional potential is by preparing students to optimally process the potential of their regions by providing knowledge, skills and work attitudes related to the potential of the region in accordance with technological developments and suitability of industry needs. In addition, one more step we can do to developing a vocational students is teaching vocational students about how to communicate so in the development of the region there are no obstacles. The trick is vocational students are invited to take a part directly in activities in the business world. These activities are for example how to open a business, how to manage, how to develop, how to maintain, how to market the product and how to produce economic value and how to cooperate with the government and so on. With the knowledge, skills and experience gained during the study, vocational high school graduates are expected to have higher value and competitiveness compared to graduates of other education levels that are equivalent to vocational high schools.

The policy of repropporting Vocational High School-Senior High School which is ideally 70:30 is well intended. However, it should be noted that the developing of vocational high schools not only win in terms of number, but the most important aspect is the relevance of the program and the area that are developed with the needs of the industry and the potential of the local area. To be achieved, the regional government needs to carry out in-depth planning by studying and researching on vocational development in accordance with its regional potential. By conducting research and research, local governments can get a real picture in the field as a basis for better and better quality development planning for vocational high schools.

5. The principle of developing regional-based Vocational High School

Ninarman (2016) thought that the development of potential-based vocational high school needs to pay attention to several principles. The principles of regional-based Vocational High School development are as follows:

5.1. The principle of relevance
The development of vocational skills programs in a region must be in harmony with the regional potential. The material or subjects taught in the expertise program are associated with the development
of science, technological progress and industrial needs. In addition, the expertise program developed must be based on the real needs of the industry and the community towards graduate from vocational high school. Good and harmonious cooperation between the vocational school, government and industry is important to prepare students to be able to apprenticeship according to their expertise program. If this principle is applied appropriately, then the vocational high school graduates can be absorbed by the job market well, so that unemployment of vocational high school graduates in each region will be reduced in number.

5.2. The principle of flexibility
In its implementation, the development of Vocational High School must be adaptive and adapt to the situation and conditions. The situation in question is the development of science and technology and industrial demands for vocational high school graduates. The conditions referred to are based on the characteristics, circumstances and potential of each region that differ from one another.

5.3. The principle of continuity
The development of Vocational High School should pay attention to the continuity between existing vocational high school graduates and their future. The application of learning in vocational schools must be adjusted to the level of the material class, practice activities based on the progress of science, technological developments, industrial needs and the demands of the job market itself (Mukhadis, 2018).

5.4. The principle of efficiency
Vocational development must be effective, but efficiency aspects also need an attention. The vocational school developed in its implementation must be related to time, energy, and equipment. It is expected that by paying attention to these matters, cost efficiency can be achieved optimally.

5.5. The principle of effectiveness
The effectiveness referred to in this case is emphasized on how to teach and educate teachers and student in vocational high schools. This principle means that the learning that is done must achieve the goals. A plan should be as effective as possible and then efficiency aspects are considered. It will be in vain if something is declared efficient but it turns out to be ineffective. Therefore learning in the developed vocational school needs to be designed in such a way that students can master the competencies and learning objectives that are set in depth to become a competent and professional workforce in the future.

6. Vocational development planning approach that is in accordance with regional potential
Educational planning can be done with various approaches, depending on the problems underlying the holding of the educational planning and the goals to be achieved. According to Husaini Usman (87: 2013) there are 4 approaches used in education planning, namely: 1) a social needs approach that focuses on educational equity; 2) employment approach that focuses on the needs of the community or industry for labor with special specifications; 3) cost effectiveness approach that focuses on the utilization of education costs as carefully as possible but obtains optimal educational results; 4) integrated approach which is a combination of the whole approach.
According to Wagiran (600-601: 2010) The approach to education planning based on natural resource empowerment in each region is an appropriate approach used for the development of educational institutions. Development of educational institutions is carried out by taking into account the advantages and potential that exist in the region to support regional development The approach that refers to natural resources and human resources is expected to provide a real picture of the workforce needs of vocational graduates in the area. The advantage of this approach is that it can bring together the supply and demand of labor in the region in a real way while still taking into account the systems and mechanisms that have existed in the communities and regions concerned.

Based on the opinions above, the authors conclude that the approach that can be used for the development of vocational-based regions is the integrated approach that considers natural resources, human resources, industrial needs and even distribution of education. By using this assessment, it is expected that the developed Vocational Schools will produce qualified graduates, so that later they can contribute positively to the development of their respective regions.

7. **Method**

Smith (1982) describes that there are 8 methods that can be done in educational planning, which can also be applied in the development of SMK. The eight methods are as follows:

7.1. **Analysis of source-purpose-objectives**

This approach is used to find out various sources and alternatives that can be used to achieve certain goals. The aspects analyzed include: sources, ways to achieve goals, and goals themselves. Mutual relations These three aspects will be studied in depth.

7.2. **Input-output analysis**

The study of what are the educational input factors that influence the process and their effects on output is the focus of this approach. Assessment of alternatives in the transformation process is a goal in this approach.

7.3. **Econometric analysis**

This approach uses empirical data, economic theory and statistics in its analysis. This method is closely related to the profit and loss approach, which uses equations that describe the interdependence relationship of variables contained in a system.

7.4. **Causal diagram**

A sequential hypothesis that aims to describe future conditions used in this approach. In general this approach is very similar to the strategic approach.

7.5. **Delphi**

The general description of the problem is done at the beginning, then each expert specifically discusses the matter according to the point of view of his field of expertise. This approach aims to find a variety of alternative programs, knowing various assumptions and facts that are taken into consideration and the foundation and used in making a decision.
7.6. **Heuristics**

If there are issues and many conflicting opinions in an educational plan, this approach can be used. This approach contains the principles and systematic procedures that make the steps to solving these problems arranged in a better and structured manner.

7.7. **Life cycle analysis**

This approach focuses on the life cycle of graduates of educational institutions, projects, programs and educational activities. The stages in this approach include conceptualization, specifications, prototype development, testing and evaluation, operations and production (graduates).

7.8. **Value added analysis**

In brief, this approach is used to measure the success of increasing graduates of an educational institution or service in an educational institution until finally an overview is drawn of the contribution of an aspect to other aspects.

In addition to the eight models that have been explained, there are other models that can also be used in the development of educational institutions (Husaini Usman, 98-135: 2013). The development model is a projection model.

7.9. **Projection**

The projection model is used because it describes the actual situation and produces more accurate decisions compared to other development models. Projection is the most frequent and commonly used model in the development of educational institutions. Development of educational institutions, including vocational school, this model requires some data relating to population and education. The results of the analysis using the projection model will produce five-year population breakdown methods, population projections and school-age population, student projections and classroom projections. (Husaini Usman, 100: 2013) As for the steps are as follows.

7.9.1. **Breaking five-years population into annual.** Population data issued by the central statistical agency generally includes data at 5-year intervals. Therefore it is necessary to solve the age of the population according to the needs of the analysis of the development of educational institutions. The easy-to-use population-age method of solving the population is the sprague multiplier method.

7.9.2. **Projection population and school age population.** To calculate projections for the next 5 years requires data from 5 years back. The more and long the range of population data obtained, the more accurate the projection results will be. The population projection formula is as follows:

\[ P_n = P_{n-1} \times \left(1 + \text{APP}_{n-1}/100\right) \]  

Where: \( P_n \) is n-year population projection \( P_{n-1} \) is population year n-1 ; and \( \text{APP} \) n-1 is population growth rate of n-1 and n-2.

The projection for school-age population is as follows

\[ \text{PUS}_n = \text{PUS}_{n-1} \times \left(1 + \text{APPUS}_{n-1}/100\right) \]  

Where: \( \text{PUS} \) n is projection of school year population n year ; \( \text{PUS} \) n-1 is school-age population year n ; and \( \text{APPUS} \) n-1 is growth rate of school-age population from n-1 and n-2.
7.9.3. **Student projections and student flows.** Student projection with student flow is one of the many methods whose analysis results are closest to the actual situation because the analysis uses various parameters. The data used in the development of SMK are: 1) the entire population and the entire population projection; 2) residents aged 16-18 years and projections of residents aged 16-18 years; 3) new level 1 students; 4) students by level; 5) graduates and graduate projections; 6) students repeat according to level. The formulas used in student projections, especially vocational students are as follows:

### 7.9.3.1. Count new level 1 student in vocational high school

\[
PSB_1^t = \left( \frac{\text{Amt}}{100} \times \frac{\text{LSD}}{\text{SMP}_t} \right)
\]  

Where:
- \(PSB_1^t\) is projection of new students at level 1 of SMK;
- \(\text{Amt}\) is number of continuing to SMK;
- \(\text{LSD} \div \text{SMP}_t\) is junior high school graduates.

### 7.9.3.2. Calculate level 1 students based on new student level 1 and number repeat level 1

\[
PS_1^t = \frac{PSB_1^t}{100} + \left( \frac{\text{AUT}}{100} \right) \times S_1^t - 1
\]  

Where:
- \(PS_1^t\) is level I student projections t-year;
- \(PSB_1^t\) is projection of new students at level 1 t-year;
- \(\text{AUT}\) is number repeats t-year;
- \(S_1^t\) is first year students t-year.

### 7.9.3.3. Calculating level II and III students based on rising number and number repeating level I. The level II student are calculated by following formula

\[
PS_{II}^t = (\frac{AN_{II}^t}{100} \times S_1^t) + \left( \frac{AUI_{II}^t}{100} \right) \times S_{II}^t - 1
\]  

Where:
- \(PS_{II}^t\) is level II student projections t-year;
- \(AN_{II}^t\) is number of rising level II t-year;
- \(AUI_{II}^t\) is number repeat level II t-year;
- \(S_1^t\) is level I student t-year -1;
- \(S_{II}^t\) is student level II t-year.

### 7.9.3.4. Level III students are calculated by the following formula

\[
PS_{III}^t = (\frac{AN_{III}^t}{100} \times S_{II}^t) + \left( \frac{AUI_{III}^t}{100} \right) \times S_{III}^t - 1
\]  

Where:
- \(PS_{III}^t\) is projection of level III students t-year;
- \(AN_{III}^t\) is level III rising rate t-year;
- \(AUI_{III}^t\) is number repeat level III t-year;
- \(S_{II}^t\) is student level II t-year -1;
- \(S_{III}^t\) is level III student t-year -1.

### 7.9.3.5. The number of students level I to III is calculated by summing all the projections of students from level I to III.

\[
PS_t = PS_1^t + PS_{II}^t + PS_{III}^t
\]  

Where:
- \(PS_t\) is projection of students all t-year;
- \(PS_1^t\) is projected level I students t-year;
- \(PS_{II}^t\) is level II student projections t-year;
- \(PS_{III}^t\) is projection of level III students t-year.
7.9.3.6. Calculates vocational school graduates based on graduate numbers. Graduates’ figures are obtained from a comparison between the number of SMK graduates and second-level students in the previous academic year.

\[ PL_t = \frac{ALT}{100} \times SIII_{t-1} \]  

Where \( PL_t \) is projected graduate t-year; \( Alt \) is number of graduates of t-year; and \( SIII_{t-1} \) is level III student t-year – 1.

7.9.4. Projection of classroom need. The expansion of education and equitable learning opportunities certainly requires new classrooms and new school units. The projection of classroom needs can be done using a micro or macro approach. Macro approach is an easy approach because the data used for analysis is easy to obtain and the calculation is simpler so it only requires a short time. The weaknesses are that the calculation results are not accurate and are general in nature because they cover a large area. While the micro approach produces calculations that approach real needs in the field, but the process is longer, more complicated and requires special skills in data processing and analysis.

7.9.4.1. Calculation of the total number of classrooms is calculated using the following formula:

\[ BRK_t = \frac{PS_t}{(S/K)_{t} \times (K/RK)_{t}} - (RK_{t-1} + RK_{St-1}) \]  

Where: \( BRK_t \) is total classroom requirements in whole t-year; \( PS_t \) is projected number of students in t-year; \( (S/K)_{t} \) is ratio of students per class in t-year; \( (K/RK)_{t} \) is class ratio per classroom in t-year; \( RK_{t-1} \) is number of existing classrooms; and \( RK_{St-1} \) is the number of classrooms that are being built or that have been existing but have not been used.

The details of the classroom requirements are divided into 2 namely additional building units and additional class units.

7.9.4.1.1. Additional building. There are several types of buildings used by educational institutions in Indonesia. Type A has 27 classrooms, type B has 18 classrooms, type C has 9 classes and type D has 6 classrooms. Determining the type of building to be built based on the efficiency of school investment. Investment efficiency is a comparison between the number of students incremented with the increase in school divided by the ratio of students per school. The basis for decision making to determine whether or not a new building unit is needed is as follows: If the investment efficiency rate <1, the increase in school is greater than the increase in the number of students, so what is needed is the addition of classrooms If the investment efficiency rate is> 1, the school growth is smaller than the growth in the number of students, so what is needed is the addition of a school building Based on the level of investment efficiency, determining the number of buildings to be built can be determined by the following formula. When written in mathematical formulas are as follows:

\[ EI = \frac{TM_{t}}{TS_{t}} \times \frac{M}{S} \]  

Where: \( EI \) is investment efficiency t-year; \( TM \) is additional student year t year -3; \( TS \) is additional school year t year -3; and \( M / S \) is student-to-school ratio t-year.
Type A building with 27 spaces:

\[ TG = \frac{EI}{27(1 + EL)} \times BRK \]  

(11)

Where : TG is additional building; EI is investment efficiency; 27 is type A building with 27 spaces; and BRK is total classroom requirements.

As for calculating additional buildings types B, C or D the formula used is the same as the formula above, only the amount of space is adjusted to the type of building, namely type B = 18, type C = 9 and type D = 6 spaces.

7.9.4.1.2. Additional class room units. The formula used to calculate class room requirements is as follows:

\[ TRK = BRK - (TG \times 6) \]  

(12)

Where : TRK is additional classrooms; BRK is total classroom requirements; TG is additional building; and 6 is a building that has 6 classrooms.

As for calculating additional classrooms type A, B or C the formula used is the same as the formula above, only the amount of space is adjusted to the type of building, namely type A = 27, type C = 18 and type D = 9 spaces.

8. Steps for developing potential-based vocational high schools

There are various stages that must be done to produce a recommendation or decision regarding the needs of SMK in the area. stages or steps taken can differ from one another, according to the approach, method, and the final goal to be achieved in the development of the vocational school. According to Iskandar Mirza (29: 2008) the steps for developing regional-based vocational high schools can be carried out in the following stages:
Figure 1. Analysis of the development of SMK based on regional development potential
(Source: Iskandar Mirza, 29: 2008)

Whereas according to Wagiran (599: 2010) the development of regional potential-based Vocational Schools with the approach of natural resources and human resources can be done with the following steps:

Figure 2. Development of regional superiority vocational schools
(Source: Wagiran, 599: 2010)
Each model of Vocational high school development that has been put forward by experts certainly has its advantages and disadvantages. Based on this, the researcher summarizes the advantages that exist in the model, approach, and development steps and combines them into a single unit, so that a special development step is created that is relevant to the potential of the region and local industry needs. As for the development steps of the region-based junior high school, the researchers created are as follows.

![Diagram of Vocational High School Development]

**Figure 3.** Development of vocational high school based on regional potential and industrial needs.

The development of regional potential vocational-based secondary schools that researchers feel appropriate when applied in this field uses an integrated approach that combines aspects of natural resources, human resources, industrial needs and even distribution of education. The development planning methods is not the one that the researchers created using a projection methods that is equipped with the Delphi methods. Each combination of approaches the researcher chooses because it can cover up the shortcomings that exist in each model or other approach, so that the methods of development and planning of Vocational Schools can be more perfect than the previous models.

9. **Conclusion**

Vocational high School is a vocational educational institution that produce graduates who are ready to work. Therefore, planning and development of SMK needs to be done carefully through various studies. The main aspects that need to be considered in the development of vocational high schools are the real needs of the industry for vocational graduates in certain fields of expertise and the potential of the local area. Vocational development can be done by steps: 1) analyzing the potential of the region; 2) analyze the condition of education; 3) analyze the potential of education. The approach that can be used can use an integrated approach that combines human resources, natural resources, industrial needs and educational equity. The SMK development method that can be used is a projection methods.
that is equipped with a forum group discussion-delphi method. The process of data analysis and processing can use software that is suitable for processing these types of data. Through the steps outlined, it is expected that the developed vocational schools can be relevant and in accordance with the potential of the region and the needs of the industry. It is expected that the developed vocational schools can contribute positively and be able to solve problems related to employment in the regions.

10. References

[1] Yulius et al. 2017. *Kebijakan Pengembangan Vokasi di Indonesia* (Jakarta: Coordinating Ministry of Economic Affairs of the Republic of Indonesia)

[2] Evans, Rupert N. and Edwin, Lewis H. 1978. *Foundation of Vocational Education*. (Columbus Ohio: Charles E. Merrill Publishing Company)

[3] Nuruddin et al. 2016. Model of Intergrated Vocational School (SMK) Production in Gresik Regency. *Journal of Engineering Management Research*. (Canada: Canadian Center of science and Education) vol 5, p 9.

[4] Byram, H.M. & Wenrich, R.C. 1956. *Vocational Education and Practical Arts in the Community School*. (New York: The Macmillan Company)

[5] Putu Sudira. 2016. TVET Abad XXI: Filosofi, Teori, Konsep dan Strategi PembelajaranVokasional. (Yogyakarta: UNY Press) p 4-7

[6] American Vocational Association. 1960. *America's Vocational Schools*. (Washington: American Vocational Association)

[7] Pavlova M. 2009. *The Vocationalization of Secondary Education*: The Relationships Between Vocational and Technology Education. (Bonn: Springer)

[8] Asmani, Jamal Ma'mur. 2012. *Pendidikan Berbasis Keunggulan Lokal*. (Yogyakarta: Diva Press)

[9] Ninarmen, Sitti Novi. 2016. *Membangun SMK Berbasis Potensi Daerah dalam Meningkatkan Daya Saing di Era Mea..* (Bombana: Youth and Sports Office of Sulawesi Province). p 12-13

[10] Amat Mukhadis et al. 2018. The Relevance of Vocational High School Program with Regional Potency Priority in Indonesia. *Journal of Physics Series 1028*. (IOP Publishing).

[11] Husaini Usman. 2013. *Manajemen: Teori, Praktik dan Riset Pendidikan 4th edition*. (Jakarta: Bumi Aksara) p87

[12] Wagiran. 2010. *Pengembangan Pendidikan Kejuruan Berbasis Potensi Daerah dan Sumber Daya Alam dalam Mendukung Continuing Vocational Education*. (Aptekindo) p 600-601.

[13] Smith, A.W. 1982. Management System Analysis and Application. (Tokyo: Holt International Edition)

[14] Husaini Usman. 2013. *Manajemen: Teori, Praktik dan Riset Pendidikan 4th edition*. (Jakarta: Bumi Aksara) p98-135

[15] Husaini Usman. 2013. *Manajemen: Teori, Praktik dan Riset Pendidikan 4th edition*. (Jakarta: Bumi Aksara) p100

[16] Iskandar Mirza. 2008. Pengembangan Sekolah Menengah Kejuruan Berbasis Potensi Pengembangan Wilayah di Kabupaten Brebes. (Semarang: Universitas Diponegoro)

[17] Wagiran. 2010. *Pengembangan Pendidikan Kejuruan Berbasis Potensi Daerah dan Sumber Daya Alam dalam Mendukung Continuing Vocational Education*. (Aptekindo) p 599.