Vol 9 (1), 2021, 29-42 : 10.23960/jmmp .v9.i1.202103
Jurnal Manajemen Mutu Pendidikan
e-ISSN: 2716-4616 | p-ISSN 2302-1772
http://jurnal.fkip.unila.ac.id/index.php/JMMP/index

Management of Facilities and Infrastructure as an Indicator of Student Skills at SMK N 2 Serang City

Irwanto[1], Bayu Saputra[2]

[1]Pendidikan Vokasional Teknik Elektro, Fakultas Keguruan dan Ilmu Pendidikan,
Universitas Sultan Ageng Tirtayasa
Jl. Raya Ciwaru No. 25 Kota Serang, Banten, Indonesia.
[2]Fakultas Keguruan dan Ilmu Pendidikan, Universitas Lampung
Jl. Prof. Dr. Sumantri Bojo Negoro, Gedung Meneng, Bandar Lampung
*Corresponding e-mail:irwanto.ir@untirta.ac.id

Received: 17 Maret 2021 *Accepted:* 28 Maret 2021 *Online Published:* 28 Maret 2021

Abstract: Facilities and Infrastructure Management as an Indicator of Student Skills at SMK N 2 Serang City. In Indonesia, the quality of education is very concerned, especially in today's vocational education, on the other hand this concern is also seen in the industrial world. SMK graduates are required to enter DUDI to match the skills they have for three years and even four years in the world of vocational education. SMK graduates as middle-level workers are very dependent on the skills they have and DUDI recruits them. It is hoped that the industrial world will always experience developments at any time so that the world of education, especially the world of vocational education, is expected to always be ready to follow these developments. Vocational education in Indonesia must keep up with new breakthroughs in the industry. In accordance with the purpose of vocational education, which is to prepare novice workers for the needs of the industrial world, especially industries that have collaborated with the SMK. SMKN 2 Serang City must look at the conditions and situations in the industry so that SMK graduates can later be absorbed into the DUDI. The new trend for SMK must strive for comprehensive reform and seriously advance SMKN 2 Kota Serang is not only a dream but there is no certainty in the achievement of these graduates of SMKN 2 Kota Serang. At the level of the learning process, a paradigmatic shift is needed in carrying out innovations or new breakthroughs in the learning process in the SMK. Vocational education in Indonesia is a shortcut to filling DUDI's workforce while reducing the level of unemployment with skills in accordance with their respective expertise. Indicators in practical learning based on BMW, namely work, continuing education and entrepreneurship according to their expertise. As long as one condition has to be fulfilled, for example establishing a collaboration between SMKN 2 Kota Serang and DUDI and not only cooperating in the form of an MOU but the industrial world should be able to provide an experience to the world of vocational education, and vice versa. For example, industry share knowledge at SMKN 2 Kota Serang and SMKN 2 Kota Serang should also seek experience in industry. Whether it's teaching staff (teachers, technicians) and students of SMKN 2 Kota Serang.

Key words: SMK, business world and industry, facilities, infrastructure

Abstrak: Manajemen Sarana dan Prasarana Sebagai Indikator Skill Peserta Didik di SMK N 2 Kota Serang. Di Indonesia, sangat memperihatingkan mutu pendidikan, khususnya dalam pendidikan kejuruan sekarang ini, di lain sisi keprihatinan ini juga terlihat di dalam dunia industri. Lulusan SMK di haruskan memasuki DUDI untuk menyesuaikan dengan *skill* yang di miliki selama tiga tahun dan bahkan empat tahun di bangku dunia pendidikan kejuruan tersebut. Lulusan SMK sebagai pekerja tingkat menengah sangat tergantung dengan skill yang dimiliki dan DUDI yang merengrutnya. Sangat diharapkan bahwa dunia industri selalu mengalami perkembangan setiap saat sehingga dunia pendidikan khususnya dunia pendidikan kejuruan sangat diharapkan selalu siap mengikuti perkembangan tersebut. Pendidikan kejuruan di Indonesia harus mengikuti terobosan baru yang ada di industri. Sesuai dengan tujuan pendidikan kejuruan yaitu mempersiapkan tenaga kerja pemula untuk kebutuhan dunia industri terutama industri-industri yang sudah berkolaborasi dengan SMK tersebut. Pihak SMKN 2 Kota Serang harus melihat kondisi dan situasi di industri supaya lulusan SMK nantinya bisa terserap ke dalam DUDI tersebut. Kecenderungan baru untuk SMK harus berusaha dalam pembaruan secara komprehensif dan sungguh-sungguh memajukan SMKN 2 Kota Serang bukan hanya bermimpi tetapi tidak ada kepastian yang dituju dalam pencapaian lulusan SMKN 2 Kota Serang tersebut. Dalam tataran proses pembelajaran, diperlukan suatu pergeseran paradigmatis dalam melakukan inovasi-inovasi atau terobosan baru dalam proses pembelajaran yang ada di SMK tersebut.Pendidikan kejuruan di Indonesia merupakan jalan pintas untuk mengisi tenaga-tenaga pekerja di DUDI sekaligus mengurangi tingkat penganguran yang memiliki *skill* sesuai dengan keahliannya masing-masing. Indikator dalam pembelajaran praktik berbasiskan BMW yaitu bekerja, melanjutkan pendidikan dan wirausaha sesuai dengan keahliannya. Asalkan satu syarat saja harus terpenuhi misalnya menjalin kerjasama antara pihak SMKN 2 Kota Serang dengan DUDI dan bukan hanya menjalin kerja sama dalam bentuk MOU saja tetapi dunia industri seharusnya bisa memberikan suatu pengalaman ke dunia pendidikan kejuruan, begitu pula dengan sebaliknya. Misalnya pihak industri membagi ilmu di SMKN 2 Kota Serang dan pihak SMKN 2 Kota Serang juga seharusnya mencari pengalaman ke industri. Baik itu tenaga pengajar (guru, teknisi) maupun para siswa SMKN 2 Kota Serang.

Kata-kata kunci: SMK, dunia usaha dan dunia industri, sarana, prasarana

▪ INTRODUCTION

Facilities and infrastructure are one component of education that must meet national education standards. In PP No. 19 of 2005 states the national education standards relating to the minimum criteria regarding study rooms, places for sports, places of worship, libraries, laboratories, workshops, places to play, places for creation and recreation, as well as other learning resources, which are needed to support the learning process, including use. information and communication technology. In article 42, it is explicitly stated that: (1) Every educational unit is obliged to have facilities which include furniture, educational equipment, educational media, books and other learning resources, consumables, and other equipment needed to support an orderly learning process. and sustainable and (2) Every education unit is obliged to have infrastructure covering land, classrooms, education unit leadership room, teacher room, administration room, library room, laboratory room, workshop room, production unit room, canteen room, power installation. and services, places for sports, places of worship, places to play, places to create, and other spaces or places needed to support an orderly and sustainable learning process.

Thus, to determine the use of facilities and infrastructure in educational units, it is necessary to make observations in one of the education units in Serang City, namely SMKN 2 Serang City. With the aim of knowing the existing infrastructure and facilities management system in SMKN 2 Kota Serang. Vocational education as part of the national education system plays a very strategic objective for the creation of a ready-to-use and skilled workforce. To be able to take part in this era, Human Resources (HR) are needed who have open competitiveness with other countries, are adaptive and anticipatory to various changes and new conditions, are open to change, are able to learn how to learn, have various skills (skills), easily retrained, and have the basics of broad, strong, and basic abilities to develop in the future. This indication shows that workers with professional qualifications are highly demanded in the world of work in this globalization era (Kuntang Winangun, 2017).

As secondary education institutions and formal educational institutions, SMK has the aim of preparing students to enter the workforce and developing professional attitudes and preparing middle-level workers to fill the current and future needs of the Business and Industrial World (DUDI) (Irwanto) , 2019). The indicators used in selecting SMKN in the technology and industry groups which were used as samples in the study entitled the effective Vocational Comparative Study in Yogyakarta, namely (1) school profile, (2) the average value of the National Final Examination (UAN), (3)) ISO certificate, (4) the number of educators who are certified educators, (5) school graduation level, (6) school cooperation with DUDI, (7) waiting period for work after graduating from school, (8) school accreditation, (9) school category, (10) school expertise group, (11) school status and (12) Student Competency Competition (LKS) (Irwanto, 2019).

Increasing the capabilities and skills of human resources for the young generation of prospective workers is the responsibility of the world of education, both formal and non-formal education. Education is an integral part that cannot be separated from the process of preparing qualified, resilient and skilled human resources. In other words, through education, qualified prospective workers will be obtained so that they are more productive (Kuntang Winangun, 2017). The education system that is oriented to the world of work in Indonesia, there are two terms of education used, namely: vocational education and vocational education. In Article 15 of the National Education System Law Number 20 of 2003, it is explained that vocational education is secondary education that prepares students especially to work in certain fields, while vocational education is higher education that prepares students to have jobs with certain applied skills at a maximum equivalent to undergraduate programs. Thus, vocational education is the implementation of a formal education pathway that is carried out at the secondary level of education, namely: vocational secondary education in the form of Vocational High Schools (SMK). Vocational education is the administration of a formal education pathway that is carried out in higher education, such as: polytechnics, diploma programs, or the like.

Likewise, SMK experiences relevance problems, and SMA does not optimally fulfill its needs as a school designed to meet the needs of high-based education, because of the changing demands for skills for various new types of work, now there is a new trend in the evolution of knowledge that is increasingly converging. New types of work require multidisciplinary skills, and there are hardly any jobs that require solely specific skills. The tendency of science and technology to develop increasingly convergent, various branches and fields of science interact and integrate and give birth to new convergences of knowledge and technology. This means that educational institutions are required to make

comprehensive change efforts. Curriculum and learning innovations are the most important parts of efforts towards this comprehensive change (Waras Kamdi, 2011).

All competencies that can be developed by Wenrich & Wenrich (1974) involve all domains contained in students, namely knowledge, skills and work attitudes, while the potential of students includes feelings, visions, thoughts and actions. Based on the definition of vocational education above, it can be said that vocational education is identical to work education which is directly related to how to empower all the potential of students so that they can have certain competencies so that later they are able to enter the world of work. Another opinion that is more specific is that expressed by Perkins (1998) which states that:

Vocational education as organized educational programs offering a sequence of courses directly related to preparing individuals for paid or unpaid employment in current. Programs include competency-based applied learning, which contributes to an individual's academic knowledge, higher-order reasoning, problem solving skills, and the occupationalspecific skills necessary for economic independence as a productive and contributing member of society.

Segiovanni (1995) argues that the characteristics of an effective vocational school are (1) learner-centered, (2) rich in various academic programs, (3) providing learning that encourages students to learn, (4) having a positive school climate, (5)) assisting student interaction, (6) extensive staff development, (7) practical leadership, (8) creative problem solving and (9) having strong relationships with the community and parents of students' parents. Learning which is often referred to as teaching and learning as a translation of the term "instruction" consists of two words, learning and teaching (teaching & learning). Learning is a process characterized by changes in a person. This is in accordance with the opinion of Ormrod (2003) which states that "*learning is a relatively permanent change in behavior due to experience*". Learning is a relatively permanent change in behavior as a result of experience. Experience in learning activities can be something that is experienced by yourself as well as experiences of others.

Hoachlander & Kaufman (1992) education expert from the National Center for Education Statistics in the USA: *Vocational education is intended to help prepare students for work, both inside and outside the home, many educators and policymakers believe it has a broader mission: to provide a concrete, understandable context for learning and applying academic skills and concepts*. The purpose of this opinion states that vocational education is used to prepare students to be ready to work either in their own environment or in the community, so the main mission of educators and policy makers is to form a strong foundation for students in the teaching and learning process, mastery and application of academic skills and application of the necessary concepts.

Finch & Crunkilton (1979) explained that vocational education has certain characteristics, namely: (1) More emphasis on the ability to work; (2) Preparation for getting a job; and (3) Emphasizes skill development. Judging from the criteria, vocational school graduates must be able to demonstrate specific knowledge and skills in certain fields as well as social and emotional knowledge and skills. Prosser's theory had a very strong influence on education and vocational training in various countries. Taiwan uses a simulation system, where practical work workshops are built in vocational schools such as or the same as industrial facilities. The second with *on-the-job training* Where the

workplace is also for Germany, which uses a *dual system*, TAFE in Australia implements work-learning to bring vocational education closer to the world of work (Irwanto, 2019).

The purpose of SMK is education that prepares students specifically to enter the workforce. After graduating, students are expected to have the ability to work to support their lives. Cece Wijaya & Tabrani Rusyan (2018) formulated SMK aims to: (1) Meet the needs of society for labor; (2) Increase education options for each individual; and (3) Fostering motivation for lifelong learning. UNESCO (2010) distinguishes between skills (skills) and competence competences). In terms of skills it is stated as follows. *Skill: the relevant knowledge and experience needed to perform a specific task or job and/or theproduct of education, training and experience which, together with relevant knowhow, is characteristic of technical knowledge*.

Skills are the relevant knowledge and experience required to carry out a specific task or job, or as a product of education, training and relevant experience with know-how which is characteristic of technical knowledge. Meanwhile, competence is defined as follows: *Competence: the proven and individual capacity to use knowhow, skills, qualifications or knowledge in order to meet both familiar and evolving occupational situations and requirements*.

This journal tries to provide an understanding that the facilities and infrastructure in SMK is an absolute must exist to support the learning process in terms of practice or practical learning which is carried out in a workshop or laboratory. In this case, the SMK Negeri 2 Serang Banten city should develop innovative, creative learning and collaborate practices in schools and DUDI establish a more effective collaboration. In this case, the SMK Negeri 2 Kota Serang together make a curriculum so that the goals of vocational education are achieved or mentioned *link and match*.

▪ METHOD

This research uses qualitative research with a descriptive approach. Qualitative research is a research procedure that produces descriptive data in the form of written words or sentences (Sugiyono, 2020). The approach used in research is a descriptive approach which is a research method that aims to explain existing and current and past phenomena and literature study is looking for data and retrieving data from reference books or the like related to the object. whose information is being sought. In accordance with the research focus, the research location is used as a research location at SMK Negeri 2 Serang City, Banten.

This research was conducted at SMK Negeri 2 Serang City, Banten, by taking the location at the SMK. This research lasted for a full month for data collection, namely February 2020. The subjects in this study were all school members at SMK Negeri 2 Kota Serang Banten who are responsible and directly involved in the aspects of management of facilities and infrastructure, both in the practical PBM and the theoretical sections. The object of this research is the management of facilities and infrastructure at SMK Negeri 2 Serang, Banten.

In this study, the main instrument is the researcher himself, then to sharpen and complete the research data, observation sheets, interview guides and field notes are used (Irwanto, 2019). In this study, researchers collected data using observation, interview and documentation techniques which are described as follows:

1. Observation

Observations are made by taking part or engaging in situations and activities of the research subject. The instrument used in this observation technique is an observation sheet whose contents are in the form of a checklist, consisting of 10 statements.

2. Interview

Interviews were conducted by asking a series of structured questions, then developed one by one to obtain in-depth information. The instrument used was in the form of a sheet of questions asked to respondents at SMK Negeri 2 Kota Serang, Banten.

3. Documentation

This documentation method is used to obtain information about the management of facilities and infrastructure at SMK Negeri 2 Kota Serang Banten. Researchers also carried out their own documentation of several objects that were deemed necessary by taking pictures / photos such as photos of the condition of facilities and infrastructure at SMK Negeri 2 Serang Banten City (Irwanto, 2019).

In this study, data analysis was carried out from the beginning of the research activity to the end of the study. In this way, it is hoped that there will be consistency in the overall data analysis. To present the data so that it is more meaningful and easy to understand, the data analysis steps used in this study are the Analysis Interactive Model from Miles & Huberman (1994) which divides analysis activities into several parts, namely: data collection, grouping according to components, data reduction, presentation of data, separating data outliers and drawing conclusions or verifying data. Of the four components are parts that are interrelated with each other and data analysis activities with the interactive model or flow analysis.

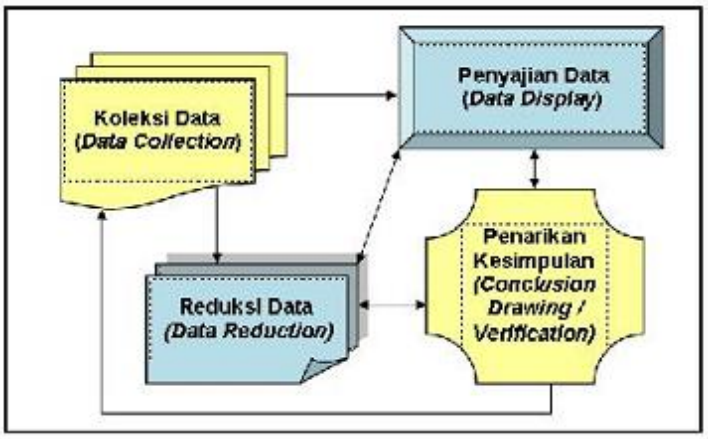

Figure 1. Qualitative data analysis with an interactive model (Miles & Huberman, 1994)

▪ RESULT AND DISCUSSION

Means are movable items or objects that can be used as tools in carrying out work unit functions. Examples: cars, computers, pens, paper, printer ink and others. Meanwhile, infrastructure is a property or immovable object that can support or support the implementation of the work unit's duties and functions. Examples of classrooms, and office buildings and others.

In the management of facilities and infrastructure at SMKN 2 Serang City, it is adequate for each existing department. But some of the tools needed by the school are very careful in using these tools in carrying out practice, especially for electrical engineering majors. Judging from the existing facilities and infrastructure in the electrical engineering

department, it is very helpful in learning in the workshop or in the laboratory. Meanwhile, as a professional workforce, students are able to carry out their duties quickly, precisely and efficiently based on the following elements: (a) systematic knowledge or theory, (b) professional authority recognized by clients, (c) sanctions and community recognition regarding the validity of its authority and (d) a regulatory code of ethics. Furthermore, preparing students to master science and technology is intended so that students: (a) Able to follow, master, and adapt to the advancement of science and technology and (b) have basic abilities to be able to develop themselves sustainably (Djojonegoro, 1998). In an interview conducted at SMKN 2 Kota Serang in the Waka section of facilities and infrastructure who said that:

"He is absolutely right, because the facilities and infrastructure in a vocational school are the most important thing because if a vocational school does not have a practical tool, it is not the actual vocational school but literary vocational school. Besides, the cost of SMK is expensive because of the practical costs ".

Based on this fact, it is the responsibility of the world of education, especially vocational education, to be able to produce competent graduates who are professional in their fields. Therefore the competencies that will be developed through the learning process must refer to the competencies needed by the industrial world. One of the subjects at SMKN 2 Kota Serang which is very important and strategic for competency formation is practical courses. Therefore it is considered very important to always improve the quality of the practical learning process.

Competence *(skill)* is the most essential of its existence in vocational education. Based on these considerations, it is appropriate for the Government to establish *Training Center* for SMK according to their study program. The location and zoning are regulated according to the industrial potential and the development of the local local potential. *Training Center* is one form of excellent service in vocational education, besides that it is a real implementation. Vocational education is education for the mastery of knowledge and skills that have economic value, in accordance with market needs with a high *labor education coefficient* (Irwanto, 2011).

Vocational education has special characteristics that are different from general education, therefore the competence of vocational teachers in particular is also different from general education. Martinet, Gauthier & Raymon, in their book *Teacher Training in Vocational Education, Orientation Professional Competence (2000)* suggests competencies in vocational education, with a cultural approach that exists in Indonesia are.

COMPETENCY 1, Acting as a professional heir: Critic, and knowledge or culture expert when teaching learners). The cultural approach to teaching is one of two general orientations in this competency. Culture must be able to absorb all the essence of the professional competence of teachers.

COMPETENCY 2, Communicate language clearly in delivering teaching, both orally and in writing, using the correct language, in various contexts related to teaching: Family is the most important factor as the basis for the skills of learners in oral language.

COMPETENCY 3, Developing teaching and learning situations in accordance with the students concerned and the main content in accordance with the objectives in order to develop targeted competencies in the study program: Learning that is delivered in the study program needs to be designed in such a way based on a constructive social view where students are the main players in the learning process and the teacher is the guide or mediator.

COMPETENCE 4, Directing the teaching-learning situation in accordance with the students concerned and the main content with a view to developing targeted competencies in

the study program: In a broader sense, the term "guiding" has a similar meaning to "mentoring" (Webster 2000).

COMPETENCY 5, Evaluating the progress of students in learning the content of the lesson and mastering the competencies that are in accordance with what is being taught: In the study program, competency development is focused and the approach focuses on learning.

COMPETENCY 6, Planning, organizing and supervising the class in such a way that is useful to support student learning and social development: Class planning, organizing and supervision, often referred to as classroom management, involves a series of separate professional activities together.

COMPETENCY 7, Adapting teaching to the needs and characteristics of learners related to learning disabilities, disabilities or failures / dropouts: School adaptation policies are adopted and aligned with reforming and proposing a number of paths that are of concern to all teaching staff, so that the question whether they can working with students based on learning disabilities.

COMPETENCY 8, Integrating information and communication technology (ICT) in the preparation and transfer of teaching / learning activities and as management learning and professional development goals: In the last twenty years, applications in computers have penetrated into the production sector. This means that information and electronic information processing has become the key (Irwanto, 2011).

COMPETENCY 9, Together with school staff, parents, communities and students in pursuit of school education goals: As shown by Perrenoud (1999), we are looking at the functions that arise in the transformation of identity on the part of various partners jointly in building new competencies.

COMPETENCE 10, Together with the teaching team members carry out tasks involving the development and evaluation of targeted competencies in the study program, taking into account the learners concerned: The ability to work from a team is one of the most important aspects of collective professionalism in teach.

COMPETENCY 11, Engage in professional development individually and with others: Professional development for teachers in the vocational sector has always been a concern for teacher training institutions and vocational education centers that employ teachers. **C**

OMPETENCY 12, Demonstrating professional behavior ethically and responsibly in carrying out their duties: Professionalism is a state or attitude developed by a person as part of the professional socialization process, where he accepts common standards shared by professional groups. Teachers are expected to demonstrate professionalism, that is, to comply with generally accepted procedures and professional standards (Bourdoncle, 1991).

Based on the pre-survey that has been carried out in the manufacturing industry, information is obtained that the process of making one product unit requires collaboration (cooperation) of various skills (collaborative skills). Without good cooperation, the end result of the expected product cannot be achieved. Consider Figure 2 below, where the practical tools for electrical engineering majors are used in carrying out the practice. Competency-based learning is very relevant to be implemented in vocational education. This is in accordance with the main objective of vocational education to provide competences, especially productive competencies, to students so that they become graduates who are ready to use or ready to work. Therefore, so that learning can run effectively and efficiently, it is necessary to innovate teachers in implementing and developing learning methods or models so that the learning objectives can be achieved optimally.

In line with the disclosure of the results of the interviews conducted by the head of the workshop at SMKN 2 Kota Serang said that:

In the facility and infrastructure management system at SMKN 2 Kota Serang already exists, so if there is a purchase of goods, there must be a request from the procurement of new goods to be conveyed to the top or the part that has the right to buy tools or goods, so there is already a cycle. The same thing was also expressed by the teacher of SMK Negeri 2 Kota Serang who stated that if a vocational school does not have the tools and materials, it is funny, right, it is not just theory but mostly practice or the ratio between theory and practice is 80:20 so that vocational graduates can be absorbed into the world industry.

Woog (2004) explains that SMK, especially the industrial technology group, is a school based on industrial knowledge and currently the industry is faced with the rapid development of new knowledge and technology, especially in the field of information communication technology and this is also a challenge faced by SMKs and cannot. avoided. At SMK Negeri 2 Kota Serang, Banten already has adequate facilities and infrastructure in terms of practice and theory, as shown in the following figure.

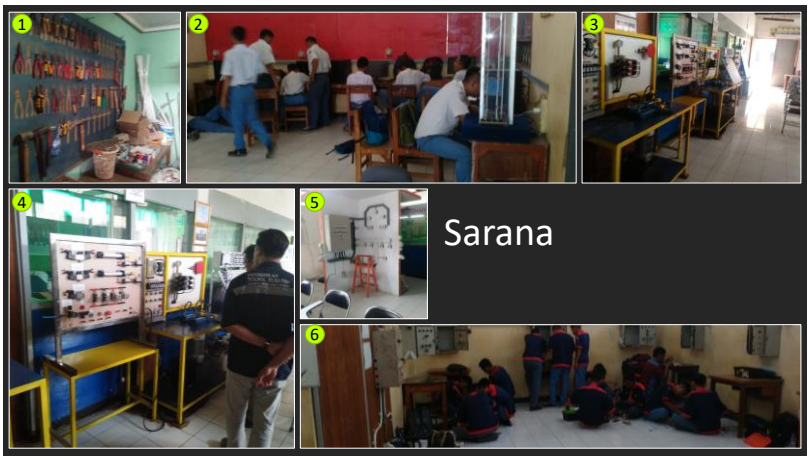

Figure 2. Students doing electrical installation engineering practice (Personal Documentation, 2019)

In order for the learning process at SMKN 2 Kota Serang to be synchronized with what is happening in the industrial world, it is necessary to develop a collaborative learning model in the practical learning process at SMKN 2 Kota Serang. According to the description above, it is important to develop a collaborative skill-based practical learning model in SMK in general. The development of a *collaborative skill*-based practical learning model is considered feasible and important because it has advantages including: (1) availability of a set of learning, including: learning materials, learning activity sheets (*handouts / jobsheets*), learning strategies, availability of practical learning evaluations characterized by approaches. *collaborative skills;* (2) provide clear directions for teachers in strategies for achieving competency by students, and (3) broaden their horizons in learning principles.

In addition to this, the implementation of practical learning with a collaborative skill approach has advantages including: 1) familiarizing students with the climate and work system in the industry, 2) competencies that are expected in the learning process to be maximally mastered by students, 3) delivery of competences in the process learning can be carried out effectively and efficiently in order to create ready-to-use graduates, 4) forming a culture of cooperation in the practical learning process so that students' learning motivation increases, 5) increasing student learning achievement.

For this reason, SMK Negeri 2 Kota Serang Banten must immediately fix the productive learning system that has been implemented, namely with the following

conditions: (a) The learning system uses the block system, (b) The learning strategy is competency-based and production-based. (c) The principle of using 1 machine 1 facility for student participants. (d) The practical learning time of 1 lesson hour = 60 minutes according to the use of time in industry. (e) Mentoring system, 1 teacher assists 8 students (if the number of students is 32 / class). (f) The machines / tools used must be in accordance with the variety and type, as well as fit for use. (g) Practical materials used are in accordance with standards of electrical work. (h) The care program uses a student-based care system. (i) The empowerment of technicians must be optimal. (j) Evaluation is carried out openly, the aspects assessed include objective, subjective and process aspects. (k) To provide the soft skills aspect for students, guidance is needed. (j) Vocational / vocational in each will carry out practice by practical teachers. (l) In order for the practical learning process to run optimally and effectively, the principal and the head of the workshop must increase the inherent supervisory function of all levels of academics and workshop technicians (Sukardi, 2018).

To achieve good vocational education, a vocationalization process is needed. The main objective of vocationalization is to increase the relevance of education and vocational guidance to the development of workforce needs in realizing a prosperous society that is competitive and oriented towards sustainable development. This planet earth is not for one generation but for posterity without limits (Irwanto, 2019). This practical learning model with a *collaborative skill* approach is expected to make a positive contribution to the *output* and *outcome* of learning, therefore this research is very important to do in an effort to improve the quality of practical learning to produce graduates who are truly in line with the demands of the job market.

According to Rojewski (2009) Prosser's view is more towards social efficiency, not to fulfill the individual needs of society, but to fulfill the labor needs of a country. The bastion of vocational education for social efficiency is the preparation of a well-trained workforce who is always subject to the employer. According to Prosser's view, the social efficiency of vocational schools is said to be effective only if the vocational school can show the school climate is the same as the climate in the industry, users and alumni are satisfied with the results of their education, ready to print skilled workers to meet the needs of jobs in a country, especially Indonesia (Irwanto, 2019).

The results of research conducted by Irwanto, 2011 stated that SMK will be effective if students are taught according to the same material where the students will work, complete tools and machines, and sufficient costs. This is also in line with what was expressed by Prosser & Allen, 1825 who stated that vocational education is used to prepare students to be ready to work either in their own environment or in the community. As seen in SMK Negeri 2 Kota Serang Banten, the facilities and infrastructure are also adequate so that students actually carry out the practices desired by the industry in accordance with the main objectives of the SMK.

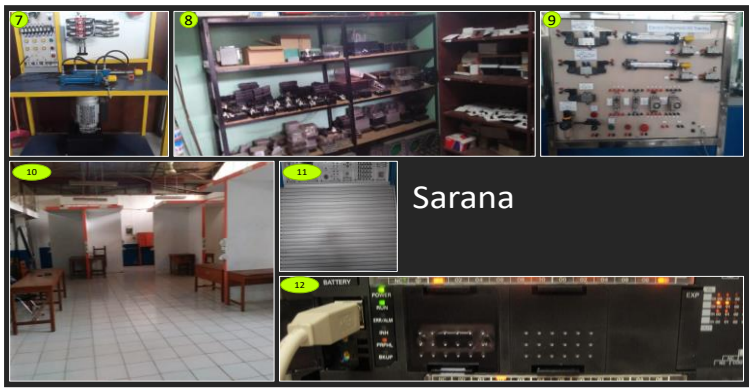

Figure 3. Facilities for the electrical engineering department at SMKN 2 Kota Serang (Personal Dokmentation, 2019)

Vocational education management requires a very expensive investment because it requires teachers or instructors who have high expertise and require equipment that is always up to date in accordance with industrial developments. To avoid wasteful investment, it is necessary to identify the causes of the low quality and relevance of vocational education in Indonesia. The addition of practical facilities in the form of additional equipment and increasing the number of teachers is not necessarily able to improve quality and relevance because the main factor lies in the ability of vocational high school (SMK) students (Satryo Soemantri Brodjonegoro, 2016). If the SMK is maintained in accordance with the objectives, vision, mission, goals and objectives then its existence, there must be a total reform in which SMKs must be truly specific and unique and promise the special skills that DUDI needs, because of its uniqueness with others, such Vocational High Schools are very few. the number and each SMK has the flexibility to follow the existing developments in DUDI.

In Japan there are only five *technical colleges* (such as SMK) and all of them are integrated with large industries, such as Toyota and others. We in Indonesia can make attractive SMKs because of their uniqueness, for example, SMK for fashion design, SMK for preparing *master chefs*, and others. If such a vocational school is handled by professionals and handled professionally, not by bureaucracy, it will certainly be superior and in demand by parents and students from the wealthy circles. The challenge going forward in the revitalization of vocational education is how to make Vocational High Schools attractive to the well-off, not just a place to go to school for the sake of social status and not just an effort to increase the gross enrollment rate of secondary education (Satryo Soemantri Brodjonegoro, 2016).

Manpower is the entire population of working age (*aged 15 years or over*) who can potentially produce goods and services. Prior to 2000, Indonesia used the benchmark for all residents aged 10 years and over. However, since the 2000 Population Census and in accordance with international regulations, the workforce is a population aged 15 years or over. The greater the number of workers in a country, the greater the supply of labor. If this is not followed by an increase in demand for labor (job opportunities) then unemployment will occur. In addition, the greater the number of workers, the greater the capacity of the working age population to support the unproductive age population. So that the value of the dependency ratio will tend to decrease. But all of this requires a sufficient number of job opportunities.

One of the goals of SMK is to fulfill the workforce in certain types of work. Certain industries / companies that are established in an area absorb a lot of labor. One of the

requirements for a prospective workforce is the fulfillment of the standard of expertise / skills possessed. Vocational High Schools as schools that educate and prepare middle-level workforce candidates must be able to adapt to the trend of development progress, especially the progress and demands of the business / industrial world, including collaborating with the business world / industrial world both during the learning process and in cooperation in the absorption of graduates. SMK. The number of Vocational High School graduates who are absorbed in the business / industrial world shows the level of conformity and equivalence (*link and match*) as expected in the SMK goals.

Based on the direction of the national education policy and various strategic issues that develop in the implementation of national education development, programs for the development and development of SMK gradually and continuously, with the priority of guidance and development are directed at: (a) expansion and equitable access to SMK by building new schools, adding new classrooms, rehabilitating buildings, and increasing existing capacity through a more effective and efficient management approach; (b) improve the quality, relevance and competitiveness of SMK by developing a number of SMK SBI, SMK SSN, revitalizing equipment, and procuring other learning infrastructure; and (c) improving SMK Management by applying the principles of *good governance* which refers to ISO 9001: 2000.

According to Ted Panitz (1996) that collaborative learning is a personal philosophy, not just a classroom learning technique. Furthermore, it is stated that collaboration is a philosophy of interaction and a lifestyle that makes collaboration as an interaction structure designed in such a way as to facilitate collective efforts to achieve common goals. This means that collaborative learning can be defined as a learning philosophy that makes it easier for students to work together, foster each other, learn and change together, and progress together as well. This is the philosophy that today's global world needs.

Skill according to the Indonesian dictionary is defined as a certain skill or ability possessed by a person. In the field of machining engineering, the skill in question is the *skill* or ability needed to work on various types of machining work. These skills are the skills to make various workpieces in the form of machine components using machine tools, including how to operate and set the machines.

In the world of vocational education, there is a great need for the facilities and infrastructure in SMK. SMKN 2 Kota Serang already has complete infrastructure for the needs of students in developing their talents, for example the existence of a futsal field, a mosque and so on, so it is hoped that SMKN 2 Kota Serang will play an active role in its graduates to be absorbed into the business world and the industrial world (DUDI). Management standards for facilities and infrastructure management at SMKN 2 Serang City are (a) Deputy for Facilities and Infrastructure, (b) Head of Department, (c) Head of Workshop, and (d) *Toolman.*

The obstacles in the management of facilities and infrastructure at SMKN 2 Serang City are as follows: (a) Equipment is often damaged, (b) Submission to get new equipment is quite difficult because it requires time, (c) Supervision of tools that require periodic inspections and (d) The number of students is not proportional to the number of tools. Sources of funds for providing facilities and infrastructure at SMKN 2 Serang City are as follows: BOS Funds, BOM Funds, Grants from LKS Competitions and Collaboration Funds with Industry. SMKN 2 Kota Serang has adequate infrastructure for the needs of its students, so that the graduates also provide a value for the industry because the skills possessed have become a tradition of both parties. The results of interviews conducted with the principal of SMKN 2 Kota Serang said that there are several industries that have worked together for

almost 5-10 years so that students who have not graduated have been ordered by the industry, including the electrical installation engineering study program. The infrastructure at SMK Negeri 2 Kota Serang Banten is quite adequate.

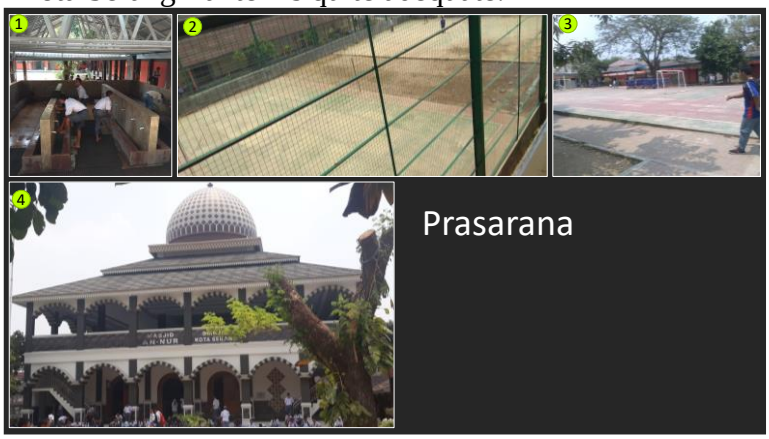

Figure 4. Existing infrastructure at SMKN 2 Serang City (Pribdi Documentation, 2019)

Vocational education is education that prepares students to be able to work in certain fields (Law No. 13 of 2003). The meaning of vocational education is more specifically explained in government regulation (PP) no. 29 of 1990, namely education at the secondary level that prioritizes the development of the ability of students to carry out certain types of work. In the National Education System Law no. 20 of 2003 article 15 describes SMK as a form of secondary education unit that prepares students especially to work in certain fields. Vocational education has different characteristics from general education, both in terms of educational criteria, subject matter, and graduates. The criteria inherent in the vocational education system according to Finch & Crunkilton (1984) include (1) education and training orientation; (2) justification for existence and legitimacy; (3) focus on curriculum content; (4) learning success criteria; (5) sensitivity to community development; and (6) cooperative relations with the community. Nolker (1983) states that in choosing the substance of lessons, vocational education must always follow the development of science and technology, community needs, individual needs, and employment opportunities.

▪ CONCLUSION

Based on the results of the research and discussion above, it can be seen that the management system of facilities and infrastructure in SMKN 2 Kota Serang has been well implemented. SMKN 2 Kota Serang is a superior vocational school in the fields of technology and industry because its graduates have been absorbed into DUDI. Even the results of interviews conducted at SMKN 2 Kota Serang said that the industry had partly ordered students who had not graduated to become workers in the industry.

▪ REFERENSI

Anonim, 1990. PP Nomor 29 Tahun 1990 tentang Pendidikan Menengah.

Anonim, 2003. Undang-undang Nomor 13 Tahun 2003 tentang Ketenagakerjaan.

Departemen Pendidikan Nasional, 2003. Undang-Undang Nomor 20 Tahun 2003, Tentang Sistem Pendidikan Nasional, Jakarta: Depdiknas

Departemen Pendidikan Nasional, 2005. Peraturan Pemerintah Nomor 19 Tahun 2005, tentang Standar Nasional Pendidikan, Jakarta: Depdiknas.

Djojonegoro, W. 1998. Pengembangan sumber daya manusia melalui sekolah menengah kejuruan. Jakarta: Jayakarta Agung Offset.

Finch, C. R & Crunkilton. J. R. 1979. Curiculum development in vocational and technical education: planning, content, and implementation. Boston, Massachusetts: Allyn and Bacon, Inc.

Finch, C. R & Crunkilton. J. R. 1984. Curiculum development in vocational and technical education: planning, content, and implementation. Boston, Massachusetts: Allyn and Bacon, Inc.

Irwanto. 2011. Studi Komparasi Sekolah Menengah Kejuruan yang Efektif di Daerah Istimewa Yogyakarta. Disertasi. Universitas Negeri Yogyakarta. Yogyakarta.

Irwanto. 2011. Studi Komparasi Sekolah Menengah Kejuruan yang Efektif di Daerah Istimewa Yogyakarta. Jurnal Pendidikan Teknologi dan Informasi, hlm. 52-67.

Irwanto. 2019. Kompetensi Guru Vokasional SMK di Era Revolusi Industri 4.0. Prosiding Seminar Nasional Pendidikan FKIP. Universitas Sultan Ageng Tirtayasa, Vol. 2, No.1, 2019, hal. 182-204 p-ISSN 2620-9047, e-ISSN 2620-9071.

Kamdi, Waras. 2011. Model-Model Pembelajaran Inovatif. Malang: UM Press.

Kuntang Winangun. 2017. Pendidikan Vokasi Sebagai Pondasi Bangsa Menghadapi Globalisasi. Prodi Teknik Mesin, Fakultas Teknik, Universitas Muhammadiyah Ponorogo Jl. Budi Utomo No. 10 Ponorogo.

Milles, M.B & Huberman, A.M. 1994. Analisis Data Kualitatif. Jakarta: Universitas Indonesia Press.

Ormrod, J. E. 2003. Educational psychology, developing learners. (4rded). Merrill: Pearson Education, Inc.

Perkins, D. C. 1998. The Carl D. Perkins vocational and technical education act, public law 105-332. USA: U. S Departmen of Education. Diambil dari situs: (http://www.ed.gov/offices/OVAE/CTE/per kins.html.03-08).

Prosser, C. A & Allen, C. R. 1825. Vocational education in a democracy. New York: Century.

Satryo Soemantri Brodjonegoro. 2016. Pendidikan Indonesia 2045. https://aipi.or.id/assets/pdf/pdf_file/13Agustus2020_Pendidikan_Indonesia2045_Satryo_S_Brodjonegoro.pdf.

Segiovani, T. 1995. The principalsip: A replective pratice perspective. School Improvement Planning in washington State. (3rd ed). Allyn & Bacon. Needham Heights. M. A. EDF Spring 2003. Washington Superintendance of Public Instruction. Diakses 29 Februari 2010 dari http://cc.msnscache.com.

Sugiyono, 2020. Metode Penelitian Pendidikan. Bandung: Alfabeta.

Sukardi, T. 2018. Model Pembelajaran Produktif Teknik Pemesinan. Jurnal Pendidikan Vokasi. Universitas Negeri Yogyakarta. Yogyakarta.

Webster, M. 2002. A dictionary of prefixes, suffixes, and combining forms from Webster's third new international dictionary, unabridged.

Wenrich, C. R & Wenrich, W. J. 1974. Leadership in Administration of Vocational and Technical Education. Ohiu: Charles. E. Merril Publishingco.

Woog, R. 2004. Working and learning in vocational education and training in the nowledge era. Diambil pada tanggal 20 Oktober 2008, dari http://pre2019.flexiblelearning.net.au/projects/resources/pdfuturesummary.pdf.