

# SYNCHRONIZATION OF THE POTENTIAL OF INDUSTRIAL WORLD WITH SCHOOL PROFILES VOCATIONAL TO IMPROVE QUALITY AND CAPABILITY GRADUATES OF VOCATIONAL SCHOOLS IN INDONESIA

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**Abstract: Synchronization of the Potential of Industrial World with School Profiles Vocational to Improve Quality and Capability Graduates of Vocational Schools in Indonesia.** This study aims to map: (1) the potential of the business and industry that has the opportunity to collaborate with vocational fields; (2) profile of vocational field school (SMK) business in improving the quality of education; and (3) synchronizing the potential of the industrial world with the business profile of the SMK. This research was conducted using qualitative methods. The research location was centered in the East Java region with samples divided into three regions, namely the northern region, the southern region, and the eastern region. This study reveals that: (1) the industrial world has the opportunity to establish cooperation with vocational schools, namely the handicraft industry, food processing, creative arts, engineering technology, processed seafood, and materials; (2) priority programs for Vocational Schools in East Java include: improvement in special expertise, school-based enterprise programs, demand-market-driven programs, hands on experience programs, production based education programs, on-the-job teacher training programs, on the job programs student training, classical indoor and outdoor programs, training to be entrepreneur programs, and center test recruitment programs; and (3) synchronizing the map of the potential of the industrial world that has the opportunity to establish cooperation with vocational schools with a profile of Vocational Schools is very necessary because it can improve the quality and capability of vocational graduates.

**Keywords:** vocational education, capability, quality of graduates, business world

**Abstrak: Sinkronisasi Potensi Dunia Industri dengan Profil Sekolah Kejuruan untuk Meningkatkan Kualitas dan Kemampuan Lulusan Sekolah Kejuruan di Indonesia.** Penelitian ini bertujuan untuk memetakan: (1) potensi bisnis dan industri yang memiliki peluang untuk berkolaborasi dengan bidang kejuruan; (2) profil bisnis sekolah lapangan kejuruan (SMK) dalam meningkatkan kualitas pendidikan; dan (3) menyelaraskan potensi dunia industri dengan profil bisnis SMK. Penelitian ini dilakukan dengan menggunakan metode kualitatif. Lokasi penelitian dipusatkan di wilayah Jawa Timur dengan sampel dibagi menjadi tiga wilayah, yaitu wilayah utara, wilayah selatan, dan wilayah timur. Studi ini mengungkapkan bahwa: (1) dunia industri memiliki peluang untuk menjalin kerja sama dengan sekolah-sekolah kejuruan, yaitu industri kerajinan, pengolahan makanan, seni kreatif, teknologi rekayasa, makanan laut olahan, dan bahan-bahan; (2) program prioritas untuk Sekolah Kejuruan di Jawa Timur meliputi: peningkatan keahlian khusus, program perusahaan berbasis sekolah, program berbasis permintaan pasar, program pengalaman langsung, program pendidikan berbasis produksi, program pelatihan guru di tempat kerja, pada program kerja, pelatihan siswa, program indoor dan outdoor klasik, pelatihan untuk menjadi program wirausaha, dan program rekrutmen ujian tengah; dan (3) sinkronisasi peta potensi dunia industri yang berpeluang menjalin kerjasama dengan sekolah kejuruan dengan profil Sekolah Kejuruan sangat diperlukan karena dapat meningkatkan kualitas dan kemampuan lulusan kejuruan.

**Kata kunci:** pendidikan kejuruan, kapabilitas, kualitas lulusan, dunia bisnis

Data from the Central Statistics Agency (BPS) in 2016 shows that the number of graduates in the vocational field who work is 12.24% (Mukhadis et al., 2018; Putra et al., 2018). This amount is equivalent

to 14.57 million from 118.41 million workers throughout Indonesia. While unemployment in vocational graduates reaches 11.19%, equivalent to 787 thousand out of a total of 7.03 million peoples without jobs. The high number of unemployed indicates, there is a labor market demand mismatch and graduate competence. Therefore, schools in the vocational field are advised to evaluate study programs and curriculum to produce competent graduates (Blackley et al., 2018; Paganelli et al., 2017). In addition, vocational schools are advised to do mapping, so that graduates can meet the needs of the workforce (Putra et al., 2016).

The competencies of vocational graduates today still do not meet the minimum standards set out in the law. This, reinforces the statement of some experts, that graduates from vocational schools are still not fully ready to use, and still have to be trained in professional, pedagogical and social competencies (Ajigo et al., 2018; Mukhadis & Ulfatin, 2017; Williams et al., 2018). This situation causes less optimal facilitation of learning in the classroom, hampered efforts to create an Indonesian gold generation targeted in 2045; and the need for vocational schools to conduct self-evaluation as an institution assigned to prepare educated and trained personnel (Sullivan et al., 2018; Williams et al., 2018).

The not yet optimal quality of classroom practice is strengthened by several experts that classroom learning today is still mechanically procedural (copying and memorizing), so student's reasoning abilities are not optimal. As a result of this situation, a growing culture of "lazy thinking and pragmatism" is growing in students. This is of concern only to vocational schools which incidentally facilitate the development of skills in mastering modern technology and responsiveness according to the dialectics of technological development. In addition, there are obstacles to creating a generation that has a mindset "how to solve the problem", not a mindset "how to create the new problem" (Hendriyani & Chan, 2018; Singer, 2016).

The main characteristic of meaningful learning events is that some experts describe it as four indicators (Ajigo et al., 2018; Rataj & Eriksson, 2018; Villagrasa et al., 2014), that is, mastering substance content meaningfully; able to translate learning outcomes knowledge into problem solving procedures; internalize in the process of thinking and acting; and able to realize in performance. Analogous to these benchmarks, meaningful learning indicators are defined as (1) mastering the substan-

ce of the field studied; (2) able to implement ways of thinking and acting in managing educational learning; and (3) willing and able to develop themselves (personal, social, and professional) on an ongoing basis. These three indicators by several research results are referred to as three competency dimensions, namely cognitive competence, functional competence, ethical competence, and meta competency as competent benchmarks in the field under study.

There are many ways to improve the quality of vocational and vocational learning. This can be exemplified from several research results developed by foreigners (Ajigo et al., 2018; Mukhadis & Ulfatin, 2017; Williams, et al. 2018). The results of a case study at the University of Hong Kong involving students from prospective teachers came from various countries. Kwo found that the practice of learning improved from changing teaching concepts, improving curriculum structure, and focusing on flexible and adaptive classroom management.

## METHOD

In this study, conducted using qualitative methods. The approaches used are Focus Group Discussion (FGD) and multi case studies (multi case studies) involving staff in companies and industries (DUDI) and principals and teachers in schools (SMK). The research location was centered in the East Java region by taking samples of regional representatives, vocational schools, and the level of DUDI. In this study, taking samples by dividing the number of districts/cities in East Java into three parts of the region, namely the northern region, southern region, and eastern region.

FGD informants were 30 principals and 25 representatives from industry. FGD data, documentation studies, and interviews in this study were analyzed with a compound analysis technique to produce business maps of vocational schools (SMK) in improving the quality of learning in productive fields of subjects. The mapping includes vocational education programs/mainstay study programs, types/types of learning systems applied, mechanisms for developing school inputs and outputs, and school flagship programs. In addition, this research also produces a map of the potential of business and industry (DUDI) which has the opportunity to collaborate with vocational schools. The mapping includes industrial dominance in each region and One Village One Product (OVOP) in each region.

## RESULT

The findings in this study include two things. The findings of these findings include mapping the business of vocational schools (SMK) in improving the quality of learning and mapping the potential of business and industry (DUDI) which have the opportunity to collaborate with vocational schools. Furthermore, in Table 1, a mapping of the potential of business and industry (DUDI) is presented which has the opportunity to collaborate with vocational schools in the East.

In Table 1, it can be explained that the eastern region of East Java has some industrial dominance and regional core competencies. In Banyuwangi district, the industry dominates the handicraft industry. Besides that, Banyuwangi Regency also has a mainstay OVOP in the form of batik craft industry. In Jember district, the industrial domination is the handicraft industry. While OVOP from Jember Regency is the Food Industry. In Bondowoso Regency, the dominance of the industry is the handicraft industry and the brass metal processing industry. While OVOP from Bondowoso Regency is in

the form of a bamboo handicraft industry. Furthermore, in Table 2 is presented a mapping of the potential of business and industry (DUDI) which has the opportunity to cooperate with vocational schools in the North.

In Table 2, it can be explained that the northern region of East Java has some industrial domination and regional core competencies. In the city of Surabaya, the mangrove handicraft and handicraft batik industries are the dominant industries. While OVOP in Surabaya city is a computer assembly industry. In Pamekasan district, the batik industry became the dominance of the industry there. While OVOP from Pamekasan Regency is food processing industry and salt industry. In Tuban district, the pottery (art) industry became the dominance of the industry there. While OVOP from Tuban Regency is in the form of weaving industry and processed seafood industry. Furthermore, in Table 3 is presented a mapping of the potential of business and industry (DUDI) which has the opportunity to cooperate with vocational schools in the South.

**Table 1. Mapping of The Potential of DUDI (Eastern Region)**

Area	Aspect			
	Main Competence	OVOP	Industrial dominance	Agrobusiness
<b>Eastern Region</b>				
Banyuwangi Regency	Food processing industry	Banyuwangi Batik craft industry	Handicraft industry	Food industry
Jember Regency	Tobacco Products Industry	Food industry	Handicraft industry	Fish processing industry (fish meal & shrimp paste)
Bondowoso Regency	Wood processing industry (furniture)	Bamboo handicraft industry	Brass metal industry	Food industry

**Table 2. Mapping of DUDI Potential That Has The Opportunity to Collaborate with SMK (Northern Region)**

Area	Aspect			
	Main Competence	OVOP	Main Competence	Agrobusiness
<b>Northern Region</b>				
Surabaya City	Packaging design industry (food & apparel)	Computer Assembly Industry	Craft industry (Mangrove Batik & Tugu Batik)	Seafood processing industry
Pamekasan Regency	Iodized salt industry	Food processing industry (cassava chips)	Industri of batik	Manufacture of processed seafood (seaweed) and plaiting
Tuban Regency	Seafood processing industry	Weaving industry	Art and batik handicraft industry	Fruit processing industry

**Table 3. Mapping of DUDI Potential That Has The Opportunity To Collaborate with SMK (Southern Region)**

Area	Aspect			
	Main Competence	OVOP	Main Competence	Agrobusiness
<b>Southern Region</b>				
Trenggalek Regency	Food processing industry	Tile making industry	Batik Handicraft Industry	Snack food processing industry
Malang City	Food processing industry (tempeh and chips) and tourism	Craft industry (ceramics and glass painting)	Rattan craft industry and wood craft	Fruit Processing Industry
Madiun City	Food processing industry and wood processing industry	Food processing industry	Batik craft industry	Food processing industry

**Table 4. Maps of Vocational Schools in Increasing Their Cooperation With The World of Work And Industry**

Area	Aspek		
	Priority Areas of Expertise	System learning priorities	School priority program
Easter Region	<ul style="list-style-type: none"> <li>• Information and communication technology</li> <li>• Agribusiness and Agrotechnology</li> <li>• Maritime</li> <li>• Art and Creative Industry</li> </ul>	<ul style="list-style-type: none"> <li>• School-based Enterprise</li> <li>• Demand-Market-Driven</li> </ul>	<ul style="list-style-type: none"> <li>• On the job training</li> <li>• Classical indoor and outdoor</li> <li>• Training to be entrepreneur</li> </ul>
Norther Region	<ul style="list-style-type: none"> <li>• Technology and Engineering</li> <li>• Information and communication technology</li> <li>• Tourism</li> <li>• Art and Creative Industry</li> </ul>	<ul style="list-style-type: none"> <li>• School-based Enterprise</li> <li>• Hands On Experience</li> </ul>	<ul style="list-style-type: none"> <li>• On the job training</li> <li>• Guest lecture from industry</li> <li>• IMscience club</li> <li>• Leadership super camp</li> </ul>
Southern Region	<ul style="list-style-type: none"> <li>• Information and communication technology</li> <li>• Agribusiness and Agrotechnology</li> <li>• Maritime</li> <li>• Tourism</li> <li>• Art and Creative Industry</li> </ul>	<ul style="list-style-type: none"> <li>• School-based Enterprise</li> <li>• Production based education</li> </ul>	<ul style="list-style-type: none"> <li>• On the job training teacher</li> <li>• Standard workshop and management of industrial culture</li> <li>• Center test recruitment</li> </ul>

In Table 3, it can be explained that the southern region of East Java has some industrial dominance and regional core competencies. In the district of Trenggalek, industrial domination is in the form of batik craft industry. While OVOP from the district of Trenggalek is the tile-making industry. In Malang City, industrial domination is in the form of rattan handicraft industry and food industry. While OVOP from Malang City is the handicraft and pariwisata industry. In the Madiun city the batik craft industry has become the dominance of the industry there. While OVOP from Madiun City is food processing and wood processing industry. Furthermore, the business maps of vocational schools in increasing their cooperation with the world of work and industry are presented in Table 4.

In Table 4, it can be explained that vocational schools (SMK) in each region in East Java have priority areas of expertise, priority learning systems, and school priority programs. In the eastern region, priority areas of expertise include information and

communication technology, agribusiness and agrotechnology, maritime, arts and creative industries. While the priority of the learning system includes school-based enterprise and demand-market-driven. In the eastern region, school priority programs include on-the-job teacher training, on the job training students, classical indoor and outdoor, and training to be entrepreneurs. In the northern region, priority areas of expertise include technology and engineering, information and communication technology, health and social work, business and management, tourism, arts and creative industries. While the priority of the learning system is school-based enterprise and hands on experience.

School priority programs in the northern region include on-the-job training of teachers and students, guest lectures from industry, club inspiration, and super camp leadership. In the southern region, priority areas of expertise create information and communication technology, agribusiness and agrotechnology, maritime, tourism, arts and creative industries.

While the priority of the learning system includes school-based enterprise and production based education. School priority programs in the south include on-the-job teacher training, standard industrial workshops and management, recruitment center tests, and limited systems

## DISCUSSION

Based on the results of this study indicate that in East Java in each part of the region has a variety of industrial domination that has the opportunity to cooperate with vocational schools. For example in the eastern region of East Java. Industrial dominance is shown by several handicraft industries (batik and brass) and food processing industries. This is largely influenced by the thick local culture in the eastern region of East Java. On the other hand, the profile of schools in the eastern region mostly has priority areas of expertise in the form of arts and creative industries. In addition, the priority of other areas of expertise includes agribusiness and agrotechnology. The suitability of the map of industrial domination with the efforts of vocational schools (SMK) in the eastern region are able to be synchronized and form a pattern of good cooperation. It will be able to create a combination of learning in vocational schools (Mukhadis et al., 2018; Putra et al., 2018).

Some experts state that the combination of theoretical learning in the classroom and practical learning practices designed in such a way will be able to produce graduates with a certain level of quality who are ready to enter the workforce (Chidiac & Ajaka, 2018; Ericson et al., 2016; Vaughan & Carter, 2018). The success of education in vocational schools is not only measured in terms of quality but also in terms of its relevance. The relationship of quality and relevance is like two sides of a coin (McCarthy & Stoszkowski, 2018; Praherdhiono et al., 2018; Stoszkowski and Collins, 2018). The quality of graduates of vocational education is considered relevant by the users of graduates, which in this case is the business sector and the world of industry (DUDI) if what they get is equal to or greater than they expected (Ajigo et al., 2018; Putra et al., 2016).

Employment providers expect graduates not only to have knowledge from the field of study or their expertise (Agonács & Matos, 2017; Marcu and Chisiu, 2018; Mulrennan, 2018). But also the ability to adapt to the new work environment in which they join, brings extraordinary communication skills, lead and lead abilities, and proven abilities

can function efficiently and effectively. This means that transferable skills are important for students (Mukhadis et al., 2018; Putra et al., 2019).

Some experts explain that the phenomenon of synchronizing the potential map of the business world with this vocational profile, will increase graduate transferable skills (Donovan, 2018; Omeno & Sang, 2018; Xu et al., 2018). Transferable skills are defined as skills or abilities that can be applied equally from one job to another. These skills are also known as key skills, generic skills or core skills. These skills increase graduate employability and can be improved through workplace learning (Afgani et al., 2018; Indiana, Champe et al., 2017; Simić et al., 2018). leaving a negative difference student need to get experiential learning. Besides that the laboratory facilities available are generally set up in the form of experimental simulative incubate miniatures as a learning tool not to produce real goods or services for the market (Andersen & Grude, 2018; Chawla et al., 2018).

Another thing happened also in the northern region and the southern region of East Java. In the northern region of East Java, industrial domination is carried out by the processed seafood industry, the technology industry, and the art craft industry. Correspondingly, several Vocational Schools in the region have also prioritized their graduate's expertise in the fields of maritime, creative industries, and engineering technology. In addition, several SMK mainstay programs in the region include school-based enterprise, demand-market-driven, classical indoor and outdoor, and training to be entrepreneurs. This will be able to improve the quality and capability of vocational graduates in a relevant manner. The new pattern of cooperation will be created and able to meet the needs of first-rate vocational schools in the world of work (Putra et al., 2016).

As an example of a priority learning system. In the region, the priority of the learning system includes school-based enterprise and production based education. The two priority learning systems are focused on the production program (Blackley et al., 2018; Paganelli et al., 2017). The pattern of cooperation in the field of production is an effort in implementing the curriculum, with the method of Production Base Education (PBE). This is done in the hope of further sharpening the competencies obtained from students. This can be done if the equipment set-up and laboratory facilities and workshops are adequate to carry out production activities in addition to the demands of the competence of the teachers. In addition, it is expected to be at least equivalent to industry supervisors either on hard

skills or soft skills (Coccia, 2017; Ferasso et al., 2017; Sousa & Rocha, 2018). This pattern will later be called the Teaching factory. This pattern can work effectively if the school is able to convince the industry around it to be a partner in production activities and at the same time become a vendor of the surrounding industry (Turner & Gianiodis, 2018), (Xu et al., 2018).

The benefits of link and match Vocational High School with the industrial world as a form of partnership can provide benefits that include (Dahlstedt & Fejes, 2017; Hornsby et al., 2018; Turner and Gianiodis, 2018): (a) students can directly see how the role of technology in the business world so that after graduation makes it easier for students to interact with technology in the business world; (b) motivating vocational students to create better, in the sense that they can explore and find new innovations needed in the world of work; (c) able to improve the quality of graduates and the capability of vocational schools because in the business world always prioritizes discipline, for example small things indicate that quality has begun to appear in schools including commitment to discipline of time and learning, work ethic, culture of competition and achievement; (d) education actors more easily design competency-based curriculum because it directly meets the demands of the business world; and (e) the form of recruitment of workers will be easier (Fox et al., 2018; Gedeon, 2017).

This happened because SMK stakeholders can recommend who students are achieving to be workers. In addition, several research results also show that partnership is a clear facilitator and an approach to improving sustainable development, especially in vocational education (Feder, 2018; Miller et al., 2017). Another factor, the importance of policy makers in vocational education in order to

maintain and improve the leadership and organizational culture of schools to satisfy stakeholders (Elmunyah, 2014; Pratiwi et al., 2017). This can be realized if the world of education wants to establish relations between the private sector and the public sector to partner effectively as well as technical vocational education in African and European countries.

## CONCLUSION

Based on the results and discussion above, the conclusion of this study is as follows. First, a map of the potential of the industrial world that has the opportunity to collaborate with vocational schools including: (1) the eastern region, namely the handicraft industry, food processing industry, and the arts-creative industry; (2) the northern region, namely the batik handicraft industry, the engineering technology industry, and the processed seafood industry; and (3) the southern region, namely the handicraft industry, food processing industry and material industry. Second, the profile of vocational schools in East Java includes: (1) priority areas of expertise including tourism, maritime, agribusiness and agrotechnology, and creative industries; (2) the priority of the learning system includes school-based enterprise, demand-market-driven, hands on experience, and production based education; (3) school priority programs include on the job training teachers, on the job training students, classical indoor and outdoor, training to be entrepreneurs, and recruitment test centers. Third, synchronizing the potential map of the industrial world that has the opportunity to collaborate with vocational schools with vocational profiles is very necessary because it can improve the quality and capability of vocational graduates.

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