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*Redefining Education, Learning and Teaching
in the 21st Century:
the Past, Present and Future of
Sustainable School Effectiveness*

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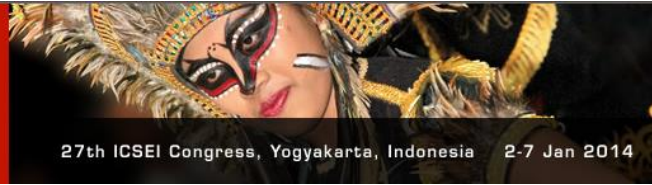
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CRITICAL ISSUES AND CHALLENGES OF VOCATIONAL EDUCATION QUALITY DEVELOPMENT IN INDONESIA

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Abstract

Currently, Government of Indonesia through Ministry of Education and Culture executes a policy to raise number of Secondary Vocational High School (SMK) so that the percentage of SMK to Secondary General/Academic High School (SMA) will shift from currently 40:60 to 60:40 in 2020. By implementing the policy, Government believes that it will reduce unemployment, increase national productivity and finally it will contribute to a better national economy. The objective of this paper is to analysis on critical issues and trends in vocational education relevant to the policy, then provide recommendations for the Government so that the policy of increasing SMK number will really achieve the expectation.

This paper will discuss conceptually vocational education in the aspects of curriculum content and its approaches, human resource, physical facilities, and community support especially people in business and industry. Critical global issues and trends in vocational education will be also discussed then contrasted to Indonesia Government policies and regulations. Increasing number of SMK without accompanied by increasing the quality will not have positive impact. Therefore, the Government of Indonesia needs to focus not only increasing the number of SMK but also focus on increasing its quality.

At the end of this paper will present a summary that consists of conclusion and recommendation. It is hoped that the recommendation will become references for Government and community, especially people in business and industry to bring a dream becomes true that increasing number of SMK will have significant impact to reduce unemployment and contribute to national economy growth.

Keywords: *issues, trends, vocational education, government policies.*



A. Introduction

Article 15 and its explanation of Indonesian Law No. 20 year 2003 on National Education System describes that Secondary Vocational High School (Sekolah Menengah Kejuruan, SMK) is an educational unit assigned to prepare the graduates become ready to work in specific field. In addition, SMK is designed to prepare the graduates possess knowledge, technology, and arts to develop their future profession through further education. Increasing number of SMK means increasing number of the graduates who are ready to work and possess competence in specific occupation. It will encourage business and industry to recruit the graduates as their new workers. By having this mechanism, it is hoped the number of youth unemployment will decrease and at the same time contribute better national economy.

National Board of Statistic (BPS) shows the percentage of open unemployment in year of 2009, 2010, and 2011 for SMK graduates were 15,69%; 13,81%; and 10,00%. These percentage are lower than those for general/academic school (SMA) ones which were 12,36%; 11,90%; and 12,17%. On the other side, the proportion of SMK to SMA at present time is 45 to 55. The lower percentage of SMK graduates unemployment above may become one out of other reasons why Minister of Education and Culture, Muhammad Nuh took a policy to increase the number of SMK. He plans the proportion of SMK to SMA in 2015 becomes 55 to 45 (Kompas, 29/8/2012). More ambitious, Directorate General of Vocational Education formulated Strategic Plan that in year of 2020 the proportion of SMK to SMA needs to be 60 to 40. Their logic may say that by having higher number of SMK will reduce youth unemployment and increase national productivity that contribute national economy growth.

However, the assumption above may not be true, the latest statistic released by BPS in August 2013 revealed that open-unemployment of youth graduates from SMK was the highest among those from SMA, Diploma, and S1. The percentages of those unemployment were respectively 11,19%, 9,74%, 6.01%, and 5,50%. These facts remind the Government whether increasing the number of SMKs is an appropriate policy. The percentage number of BPS above must be true, however, we need to be carefully examined what quality of SMK was surveyed by BPS. Samani (Republika, 4/11/2013) argued that not all those SMKs surveyed by BPS are as good SMKs that have good quality of teachers, curriculum, and facilities as required for a good vocational school. His research finding in 1991 shown that there was significant different in waiting time to get first job, salary, and career development in the respect of SMK quality. Study done by Aysit Tansel (1999) in Turkey supported Samani's findings that unemployment rate of Vocational education graduates was lower than those from general education. The salary of those

first group were also higher than those of the second group. It is believed that the quality of vocational schools surveyed in Turkey are good ones.

To have good quality of SMKs, a proper planning need to be conducted in the aspect of curriculum, human resources, facilities, and community support, especially people from business and industry. The following section will discuss issues and challenges for each previous aspects mentioned above.

1. Curriculum

An issue raised that SMK curriculum is not yet formulated to match the needs of business and industry, the challenge is how to formulate SMK curriculum relevant to the need of business and industry. There are many ways or approaches to cope this matter. Two out of the approaches discussed in this paper are Training Technology System (TTS) and Developing A Curriculum (DACUM). TTS was developed by Richard Swanson based on the theory and concept prevalent in the fields of economics, psychology, management, and education. Finch and Crunkilton (1993: 29) described that Swanson’s concept is tied to a premise that training can increase profits, whereas the psychological/education foundation is based on the assumption that learning can be managed both efficiently and effectively. TTS comprises five major components or phases: analyze, design, develop, implement, and control. Detail description for each component is shown in the following Figure 1.

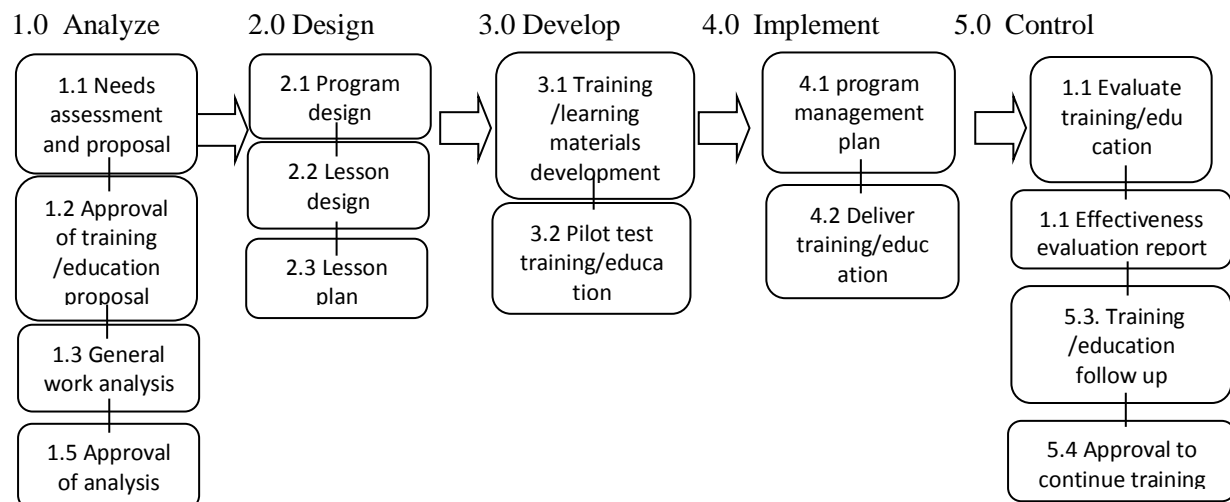


Figure 1: *Training/Education Technology System*

The second approach of VET curriculum development is DACUM. It was pioneered by Robert E. Norton a senior researcher in Center of Education and Training for Employment (CETE) of Ohio State University. The DACUM process for occupational analysis involves local men and women with reputations for being the “top performers” at their jobs, working on a short-term committee assignment



with a qualified DACUM facilitator. Workers are recruited directly from business and industry. These workers become the Panel of Experts who collectively and cooperatively describes the occupation in the language of the occupation (CETE-OSU, 2007). The challenge of the issue above is whether Ministry of Education and Culture (MONEC) will have commitment to formulate the curriculum of SMKs based on those approaches which are more challenging than the conventional approach.

2. Human Resources

Related Vocational Education and Training (VET) human resources, there are two issues need to be prepared well. The two are principal and teacher. For VET principals must have specific leadership characters. European Centre for the Development of Vocational Training (2011) described VET leaders is characterized by the following factors: (1) strong connection to the labor market; (2) strong connection to and a high level of networking with a wide range of stakeholders outside the education and training community, including trade unions, and vocational associations, companies and businesses; (3) a high level of innovation and a need for continuously changing learning contents and dynamically changing staff composition due to the pace of technological development and change of labor market needs; (4) special responsibility for social inclusion, with the high number of disadvantaged students struggling with learning and social difficulties, a high rate of drop-outs, and a great diversity of students and training programs; (5) declining interest and growing negative sentiment towards VET, resulting in a need for marketing the training provision on offer.

For VET teachers CEDEFOP (2004: 21), there are permanent and continuous issues related to the following trends: (1) for more 'student-oriented' approaches, i.e. coaching; guiding; supervising and tutoring; (2) greater flexibility of VET brought about by modularization and increased possibilities of credit transfer/recognition of prior learning; (3) for more individual guidance of students and the ability of teachers to assess the strengths and weaknesses of their students, ability to cooperate with other teachers in planning and carrying out the teaching; (4) cooperate and create synergy between different subjects in thematic/interdisciplinary teaching; (5) not only master in 'generic' teaching skills but also specific vocational skills in the subjects they teach; (6) continuously update their vocational skills and knowledge, incorporating what they learn into their own teaching program to ensure trainees leave the VET system with immediately useful skills; (7) on-the-job learning (OJL) for teachers and trainers is now a standard component in teacher and trainer training to improve their skills in the areas they are teaching and to improve cooperation between VET institutions and companies/industry.



The challenge is whether MONEC will have commitment to recruit and enhance SMK principals and teachers in line with those characters described above. It is not easy to do so, a good plan, sufficient budget, and good acceptance of community for SMKs are very vital requirements.

3. Facilities and Business-Industry Support

In regard to VET facilities and support from people in business and industry, the issue is how to set VET institution or SMKs as closed as possible to business and industry setting to produce their products or delivering their services. Charles A. Prosser in Wonacott M.E. (2003) as the father of U.S. vocational education, had advocated his 16 theories as a comprehensive foundation for establishing effective vocational education related to the world of business and industry. Prosser said, vocational education would function effectively if it was organized in accordance to the following 16 theories.

The first theory, vocational education will be efficient in proportion as the environment in which the learner is trained is a replica of the environment in which he must subsequently work. The second theory, effective vocational training can only be given where the training jobs are carried on in the same way with the same operations, the same tools and the same machines as in the occupation itself. The third theory, vocational education will be effective in proportion as it trains the individual directly and specifically in the thinking habits and the manipulative habits required in the occupation itself. The fourth theory, vocational education will be effective in proportion as it enables each individual to capitalize his interests, aptitudes and intrinsic intelligence to the highest possible degree. The fifth theory, effective vocational education for any profession, calling, trade, occupation or job can only be given to the selected group of individuals who need it, want it and are able to profit by it. The sixth theory, vocational training will be effective in proportion as the specific training for forming right habits of doing and thinking are repeated to the point that these habits become fixed to the degree necessary for gainful employment.

The seventh theory, vocational education will be effective in proportion as the instructor has successful experience in the application of skills and knowledge to the operations and processes he undertakes to teach. The eighth theory is a minimum employment standard theory. It says that for every occupation there is a minimum of productive ability which an individual must possess in order to secure or retain employment in that occupation. If it is not, neither personally nor socially effective will not happen. The ninth theory is a market demand theory. It says that vocational education must recognize conditions as they are and must train individuals to meet the demands of the market even though it may be true that more efficient ways of conducting the occupation may be known and that better working conditions are highly desirable. The tenth theory, the effective establishment of process habits in any



learner will be secured in proportion as the training is given on actual jobs and not on exercises or pseudo jobs. The eleventh theory says that the only reliable source of content for specific training in an occupation is in the experiences of masters of that occupation.

The twelfth theory, for every occupation there is a body of content which is peculiar to that occupation and which practically has no functioning value in any other occupation. The thirteenth theory, vocational education will render efficient social service in proportion as it meets the specific training needs of any group at the time that they need it and in such a way that they can most effectively profit by the instruction. The fourteenth theory is a working group characteristics theory. It describes that vocational education will be socially efficient in proportion as in its methods of instruction and its personal relations with learners it takes into consideration the particular characteristics of any particular group which it serves. The fifteenth theory, the administration of vocational education will be efficient in proportion as it is elastic and fluid rather than rigid and standardized. The sixteenth theory, while every reasonable effort should be made to reduce per capita cost, there is a minimum below which effective vocational education cannot be given, and if the course does

To execute all 16 Prosser's theories above surely need support from people in business and industry, e.g., willingness to collaborate with VET stakeholders to establish good vocational education. People in business and industry should provide opportunities for, VET personnel, especially students and teachers to have access in their business processes. Thus 16 Prosser's requirement definitely become a high challenge and consideration for the Government.

4. Economic efficiency

Many economists, e.g. Pavlona (2009), stated that in social economic perspective, vocational education is economic education since it is driven by the need of labor market and contribute to economic strength. In line with Prosser's theory, vocational education is an education to prepare the students for entering field of work, therefore, vocational education must be always close the world of work.

The phenomenal issue usually debated is that the cost of vocational school (SMK) establishment is more expensive than that for general/academic one (SMA). Therefore, Calhoun & Finch (1982) remained that vocational education should be considered and evaluated on the basis of economic efficiency. Vocational education is economically efficient when (1) it prepares students for specific jobs in the community on the basis of man power needs; (2) it insures an adequate



labor supply for an occupational area; and (3) the student gets the job for which he was trained. If the development of SMK in Indonesia should in line with three economic efficiency concept. If it is so, increasing number of SMK will truly reduce youth unemployment. The benefit of vocational schools, when those established in good quality, as stated earlier they should reduce youth unemployment and contribute better national economy strength.

Regarding the benefit above, OECD report written by Aisha Labi (2013) described: “The countries that have fared best were those with a higher-than-average proportion of vocational-education graduates, such as Austria, Germany, and Switzerland, which were able to keep their increase in youth unemployment below eight percentage points. In sharp contrast, countries with a lower-than-average proportion of vocational graduates, such as Greece, Ireland, and Spain, saw increases in youth unemployment of 12 percentage points or more. Vocational programs, which have drawn growing interest in other nations, including the United States, play a critical role in strengthening countries' capacity to deal with rapidly changing labor-market conditions”. In this context, increasing number of SMK will also have positive impact to lower unemployment rate.

5. Government Policy Orientation

Atchoarena, D. and Grootings, P. (2009) advocates that vocational education needs to develop not only on the basis of education, economy and man power labor market, but also on government policy orientation. In United States, for example, there is Obama’s policy to revise the Carl D. Perkins Career and Technical Education Act (US’s term for vocational education) by investing an additional budget to increase partnerships between high schools, colleges and employers, with the goal of directing students toward high-need industries such as engineering and healthcare

However, there was a critique stated by Goldstein. D (2012) that Obama policy is too much on post-high school occupational training, and not enough on introducing younger adolescents to the world of work outside the classroom. Indeed, the administration's policy states that high school students enrolled in career and technical education programs must still achieve “mastery of the core academic content required of all students”. Goldstein. D. (2012) reported that in many Western European nations, on the other hand, the high school curriculum is significantly differentiated for teenagers depending on whether they are headed to a liberal arts university, a technical college, or into the workforce. Some people argued the United States should adopt a Swiss-style vocational education system, in which students in their last two years of high school have the option of participating in highly structured workplace apprenticeships,



working for pay several days per week and spending the rest of the time in the classroom. Goldstein D. (2012) stated that “Currently, the U.S. has a 22 percent youth unemployment rate, compared to 5 percent in the Netherlands or Switzerland. Among that 22 percent are young people who are going to be permanently scarred, and that’s damaging to the human psyche. We don’t think about what we can do to help the young people in our charge discover the role of work in our lives”.

In the context of Indonesia, conventional SMK curriculums are likely refer to European one. Lately, there is a attempt to insert academic subject matters in SMK curriculum (broad-based curriculum) to provide opportunity for the graduates if they want to continue in higher education to pursue higher occupation rank through higher education scheme. It means that vocational education policy in Indonesia is not only refers to European system, but also accommodates some US’s policy.

6. Stakeholders’ Attitude

The development of vocational education is closely related to people attitude. The more positive people attitude toward vocational education the better vocational education will be. People in this case, especially people in business and industry. Historically, reported by Jon Lauglo and Kevin L. (1988, p. 45), “... before the mid-1800’s in the now industrialized nations, the preparation of young people for their working lives took place mostly in the workplace. But this is no longer true. Over a period of some 100 years, secondary and post-secondary schooling has assumed ever greater responsibility for preparing young people for working life. However, this vast expansion of public education in most industrialized nations appears now to have reached something of a plateau. In the United States, the private sector is expressing increasing concern at how the schools prepare (or fail to prepare) young people for employment, and schools are opening themselves to many new ways to fulfill this task. In particular, active partnerships are developing in different forms across the country”.

Similarly in Indonesia, the responsibility of preparing young people for their working lives becomes in the side of schools. Schools initiate to establish partnerships with business and industry in preparing students to possess competency in line with the need of business and industry. There was an era that school-business and industry partnership in Indonesia was considerably in a good establishment. It was initiated and supported by Wardiman Djojonegoro who was a Ministry of Education and Culture in 1993-1998.



Wardiman Djojonegoro got his diploma and doctoral degrees in Germany and Dutch, it might be one out of others why his policy orientation in education was oriented to Dutch and Germany. In the domain of vocational education, he promoted a policy called “Link and Match”. He mandated that each vocational school (SMK) had to formulate school curriculum that links and matches to the need of business and industry. On the other side, Wardiman advocated people in business and industry to help and facilitate SMKs to executed their programs. He formed a National Vocational Education and Training Assembly/Majelis Pendidikan Kejuruan Nasional (NVETA/MPKN). The member of this Assembly represents people from business and industry, educational experts, community, and people from Ministry of Education and Culture, especially from Directorate of Vocational Education. This Assembly became Government Advisory and Partner in formulating long-and mid-terms policies for vocational education. Similar Assembly was formed in provinces, districts, and school levels.

The favorite program in vocational education in that era was Dual-System Education or *Pendidikan Sistem Ganda (PSG)*. Basically, the essence of PSG refers to Dual System Program in Germany. It was a collaboration between school and business industry in executing vocational education programs which are basic skill and theories taught in vocational school while further/advanced skills are taught in business and industry site.

Conversely to the Wardiman policy above, so far current MOEC and Directorate of Vocational Education have not announced yet strategic programs and its time line on how to accomplish the target on increasing the number of SMKs. Clearly, this policy needs support from stakeholders, especially from business and industry. If they are not involved, no information provided, no incentive offered, the policy is potentially fail.

7. Conclusion and Recommendations

- 1) Traditionally, Vocational Education is designed to fulfill the need of business and industry, therefore, as Prosser suggested, vocational school establishment (e.g., curriculum, personnel, facilities) should be set as closed as possible to the business and industry setting.

Recommendation-1: the involvement and contribution of business and industry is a must.

Recommendation-2: there must be incentive from government to businesses and industries who contribute and/or participate in executing vocational school programs, e.g., by deducting their tax, block grant.



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Effectiveness and Improvement



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- 2) Vocational school establishment must be designed comprehensively in conjunction with long-, mid-, and annual national development plan in the aspect of economic, man-power, social culture, technology, and politic.

Recommendation-3: there must be synchronization policies among relevant ministries and institution to support vocational school/SMK establishment

- 3) Personnel competences of vocational school (principal, teacher, technician, and supporting staff) need to be up-dated regularly to catch-up the development of technology.

Recommendation-4: there must be schemes initiated by government (national and local) and collaborates with relevant institutions to execute them.

- 4) Increasing number of SMK must be simultaneously followed by improving the quality of SMK.

Recommendation-5: there must be a commitment government and relevant stakeholders to actualize the quality of SMK establishment.

- 5) New vocational schools (in US termed as Career and Technology Education) should provide students with more basic science and technology to enhance them in adapting new technology in their career development or for further education. It is relevant to Indonesia Government Low No. 20 year 2003 Article 15 and its explanation

Recommendation-6: There must be a scheme of career path for SMK graduates both for professionally and possibility bridging to academic career.

- 6) In situation over-supply SMK graduates, it may raise youth unemployment rate. Recommendation-7: SMK curriculum needs to cover entrepreneurship subject matter to provide the graduates knowledge and skills to alternatively become self-employed and/or provide employment for others.

- 7) It is still become a common knowledge for most people that vocational school/SMK is a second class after general one/SMA.

Recommendation-8: There must be a National Campaign to convince youths and parents that SMKs is not assigned to produce blue-collar workers instead of professional technicians that may lead to professional experts.

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