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Makassar, 3-5 Mei 2012
UNIVERSITAS NEGERI MAKASSAR

REFORMULATING THE PARADIGM OF TECHNICAL AND VOCATIONAL EDUCATION

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Fakultas Teknik
Universitas Negeri Makassar

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PENGANTAR

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Seminar Internasional ini merupakan rangkaian kegiatan dalam rangka Konvensi Nasional Asosiasi Pendidikan Teknologi dan Kejuruan Indonesia (APTEKINDO) VI, dan Temu Karya XVII FT/FTK/FPTK-JPTK Universitas se-Indonesia yang diselenggarakan pada Fakultas Teknik Universitas Negeri Makassar pada tanggal 3-5 Mei 2012.

Seminar Internasional ini dengan tema "***Reformulasi Paradigma Pendidikan Teknologi dan Kejuruan"*** merupakan sarana komunikasi ilmiah yang bertujuan untuk mendapatkan konsep-konsep ilmiah dalam rangka mengoptimalkan peran Pendidikan Teknologi dan Kejuruan dalam Pembangunan Nasional dimasa datang.

Prosiding ini merupakan himpunan makalah utama dan makalah paralel, namun karena kesulitan teknis, maka yang dibukukan hanya halaman pertama dari masing-masing makalah yang berisikan judul dan abstrak, sedangkan prosiding lengkap disiapkan dalam bentuk CD yang telah dijadikan dalam format PDF. Kepada bapak-bapak dan ibu-ibu yang memerlukan makalah cetaknya secara lengkap untuk keperluan tertentu, dapat mencetak makalahnya sendiri dan melampirkannya beserta prosiding ini.

Penyuntingan terhadap prosiding ini telah diupayakan sebaik mungkin, namun kami menyadari sepenuhnya bahwa masih terdapat kesalahan dan kekurangan dalam penyusunannya. Karena itu, kritik dan saran sangat kami harapkan guna perbaikan pada masa yang akan datang.

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Semoga penerbitan Prosiding ini bermanfaat bagi kita semua.

Panitia,

Sie Makalah/Prosiding

SAMBUTAN DEKAN
FAKULTAS TEKNIK UNIVERSITAS NEGERI MAKASSAR

Pertama-tama marilah kita panjatkan puji dan syukur kehadirat Tuhan Yang Maha Kuasa karena atas Taufiq dan HidayahNya maka Seminar Internasional yang merupakan rangkaian kegiatan Konvensi Nasional Asosiasi Pendidikan Teknologi dan Kejuruan Indonesia (APTEKINDO) VI, dan Temu Karya XVII FT/FTK/FPTK-JPTK Universitas se Indonesia telah berlangsung lancar dan sukses.

Kegiatan seminar international ini diselenggarakan pada Fakultas Teknik Universitas Negeri Makassar pada tanggal 4 Mei 2012, yang mengangkat tema utama "***Reformulasi Paradigma Pendidikan Teknologi dan Kejuruan***", dengan enam sub tema yaitu: (1) Pengembangan Kebijakan Pendidikan Teknologi dan Kejuruan, (2) Rekonstruksi Kurikulum Pendidikan Teknologi dan Kejuruan Berbasis Karakter dan Kewirausahaan, (3) Pengembangan Model Pembelajaran Pendidikan Teknologi dan Kejuruan, (4) Evaluasi Pelaksanaan Sertifikasi Guru Pendidikan Teknologi dan Kejuruan, (5) Pengembangan Pendidikan Profesi Guru Teknologi dan Kejuruan, dan (6) Pengembangan Kemitraan LPTK Pendidikan Teknologi dan Kejuruan.

Seminar Internasional ini menampilkan para pakar pendidikan kejuruan, baik dari dalam dan luar negeri. Oleh karena itu, seminar ini dapat lahir ide-ide dan pemikiran inovatif yang cemerlang, dalam usaha mengembangkan dan menggagas paradigma baru Pendidikan Teknologi Kejuruan. Semoga ide-ide yang telah dibahas dalam seminar ini terus menerus dikembangkan untuk memantapkan peran strategis pendidikan kejuruan bagi kemajuan bangsa dan Negara, khususnya dalam mempersiapkan tenaga kerja yang sesuai dengan kebutuhan dunia kerja.

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Wassalam
Dekan FT-UNM,

Prof. Dr. H. Husain Syam, M.TP
NIP. 19660707 199103 1 003

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REFORMULATION OF SECONDARY VOCATIONAL EDUCATION SPECTRUM POST LEGALIZATION OF INDONESIAN QUALIFICATION FRAMEWORK

Putu Sudira
Yogyakarta State University

Abstract
Secondary Vocational Education Spectrum (SVES) and Indonesian Qualification Framework (IQF) are two strategic government policies for vocational education development in Indonesia. To realize the quality of vocational education, SVES must be reformulated after legalization of IQF. SVES reformulation is intended to provide a clear policy towards the goals, objectives, and boundaries of the vocational education's development at the Vocational High School (VHS). Practices in vocational education must based on the SVES, which correspond to four basic dimensions IQF namely: (1) grades or levels of education, (2) occupational pathways in industry or work place, (3) individual experience or self-learning; and (4) vocational and professional certification.

***Keyword**: IQF, VHS, SVES.*

Introduction

Development of vocational secondary education requires a variety of fundamental policy. Secondary Vocational Education Spectrum (SVES) is one of the fundamental policy in secondary vocational education development in Indonesia. Development of secondary vocational education requires SVES policy that in accordance with market demand, match between the employee and employer. SVES policy is used as the basis for development of various types of secondary vocational education study programs throughout Indonesia. SVES is the basic organizing skill competencies, curriculum development, learning development, development of infrastructure, development and provision of training of educators and education personnel. SVES describe the varying needs of vocational education delivery in various regions across Indonesia. SVES must be adaptive to changes of employment in fast-moving (Rojewski, 2009; Boutin, Chinien, Moratis, & Baalen, 2009).

Global transformation of the knowledge-based economy, creative industries, a strong demand for the development of community quality, regional and international competition has prompted changes in the pattern of organization of vocational education in various parts of the world (Cheng, 2005) including in Indonesia. Development of vocational education in Indonesia requires a spectrum that "fit for the future", is meaningful to students, the central government, local government, community, business and industry. The SVES relevant to the needs of central, provincial, district/city, VHS, business and industry, community, and students which is the important part in development of VHS. SVES illustrate the need of human resource development for the local, regional, and international's vocational needs.

After the establishment of the IQF at the beginning of 2012, it is necessary for reformulation of SVES because the IQF policy has strong relation with Indonesia vocational education system. IQF includes the concept of educational achievement and recognition of classes of work competence in accordance with the structure of employment. There are several issues to be outlined in this paper following:

1. How does the effective and efficient SVES structure for fostering the development of secondary vocational education at VHS throughout Indonesia within the framework of the development of workforce competencies at level 1 and 2 in accordance with IQF.
2. How does the competence structure of SVES relevant to the needs of employment.
3. How the formulations of the SVES are adaptive to changes and meaningful to the life and career development of vocational education students.

Problem Resolution Analisys

1. Indonesian Qualification Framework (IQF)

Indonesian Qualification Framework (IQF) as framework of competence and qualifications classes is a recognition of competence in accordance with the structure of employment in various sectors of employment. IQF is very important for structuring of secondary education vocational training policies in Indonesia. IQF contains four main dimensions following: (1) grades or education levels, (2) occupational pathways in industry or work place, (3) individual experience or self-learning; and (4) vocational and professional certification. The fourth dimension builds framework of competence qualifications hierarchy that can reconcile, equalizes, and integrate the fields of education, job training and work experience in order to give granting recognition of competence that accordance with the structure of employment in various sectors. IQF embodies the quality and identity of the Indonesian people associated with the system of national education and training that Indonesia have.

IQF demonstrated competence qualifications as well as level of education in VHS. Level of competence qualifications in VHS is on level 1 and 2. Level 1: able to make task simple, limit, routine by using the tools, rules and processes that have been established, and guidance, supervision and responsibility of his superiors. He has factual knowledge. Responsible for own work and is not responsible for the work of others. Level 1 is the end of the second year in VHS.

Level 2: able to perform a specific task, using the tools, information, and common working procedures, and demonstrate measurable quality performance, under direct supervision of his superiors. It have a basic operational and factual knowledge of specific work areas, so as to choose the solution that is available to the common problems that appeared. Responsible for their own work and be given the responsibility of guiding others. Level 2 is an end of year 12 level of education in the third year in VHS. Level 1 and Level 2 are operator that indicates the level of graduate employment qualifications VHS. The graduate certificate in VHS is the operator.

IQF provide opportunities for vocational learners to obtain a operator 1 certificate if had completed competency in class XII. This qualification confirms that the level of competence in VHS is not for the technician or analyst. IQF asserted that VHS is included in the vocational track in addition to working as an operator in the industry or workplace may also continuing education at diploma (DI, DII, DIII, or Applied S1).

2. Reformulation SVES Post-Determination IQF

There are a number of reasons why SVES need to be reformulated as a policy in development secondary vocational education post-determination IQF. First there is a gap of quality, quantity, capacity, relevance between producers versus user output vocational education, the information needs versus human capital planning, unemployment data, the rules are of qualifications which have different types. In a socioeconomic perspective, vocational education is economic education because derived from the needs of the job market, giving support of economic

power (Singh, 2009; Hawley, 2009; Pavlova, 2009). Vocational education is preparing students to enter the workforce (Billet, 2009; Hiniker, and Putnam, 2009). Vocational education should always be close to the world of work (Wardiman, 1998:35; Hiniker and Putnam, 2009). According Wardiman (1998:32), the vocational education developed based on the need of community for jobs. Learners need a program that can provide skills, knowledge, work attitude, experience, insights, and networks which can help them to get job based on career choice (Tessaring, 2009; Billet, 2009; Hiniker and Putnam, 2009). As an education which is derived from the economic needs, vocational education is leads more to the education for earning a living (Finch & Crunkilton, 1999; Singh, 2009; Pavlova, 2009).

Second, decentralization policy of education has given duties, functions, authority and greater responsibility in providing education to local governments (provincial, district/ city). Through SVES, local governments throughout Indonesia can be more independent in choosing and organizing field of expertise, skills study program, vocational skills or competence in accordance with local workforce development needs. Decentralization of education aims to improve service quality and performance of vocational education for equity, quality, relevance, and efficiency of vocational education. SVES is used to be identified the selection, opening and closing of skills competence in VHS held by the needs analysis, feasibility, and appropriateness.

Third, SVES provide a field of study skills, study skills program, expertise and competencies that are relevant to the need of secondary vocational education of each local government. The meaningfulness of the implementation of competency in VHS for life, self, and society in line with the opinion of Djohar (1999: 31) is the relevance of vocational education. According to Thompson (1997:11) in a changing society, the means of society, needs or desire is always develop ranging from the practical to the philosophical ideals.

Fourth, education in VHS in the era of knowledge-based industries are expected to: (1) capable to make the minds of learners active; (2) be able to finalize the emotions of students; (3) able to train the students to see the problems of life and well-trained to solve problems correctly; (4) are contextual; (5) establish the growth of students as a whole; (6) generates a culture of learning, work, and service; and (7) has a strong vocational character. VHS is not longer understood as a place of learning and teaching in context of knowledge transmission. Moreover, the discourse of philosophy of education, a fundamental understanding of the VHS placed in a broader scope, namely as a place of humans in order to produce learning culture for the community vocational education (Hamengku Buwono X, Kedaulatan Rakyat August 5, 2008). Thus SVES becomes very important as a reference to the areas selection of expertise, study skills, expertise and competence in accordance with the needs of learners.

Fifth, vocational education serves as a self-adjusting "acculturation" and host of changes to "enculturation". Vocational education encourage a change for improvements in proactive efforts to adjust to itself and be able to adopt with long-term strategy. Most of countries in the world reform vocational education relevant to the needs and demands of change (Hiniker & Putnam, 2009). Such as governments of other countries in the world, Indonesian government expects the secondary vocational education system can achieve performance that can not be done by a general education system. The government will held training if the supply of labor showed rapid improvement, employment grew by leaps and bounds, or if unemployment increases significantly. Training conducted by the government to prepare workers to get job-related competencies (Chinien & Singh, 2009; Rychen, 2009; Singh, 2009; Pavlova & Maclean, 2009). Vocational education system to help the young unemployed and job seekers reduce the burden of higher

education, attracting foreign investment, increase revenue, and expand employment opportunities, press the gap between the rich and the poor (Gill, Fluitman, & Dar, 2000: 1).

The findings of the World Bank's study assert that the dual purpose of vocational education and training policy are: (1) to encourage private provision and financing, (2) improve the efficiency of the public in providing education and training vocational. According to Finlay (1998) vocational education develop "marketable" workforce with benefit exceeds the "means of production". Vocational education does not just make the workforce as a robot, handyman, or a slave. Vocational education should also be humanizing mankind to grow naturally and democratically (Grubb & Lazerson, 2009).

Vocational education as adult education is designed to prepare students to enter the working world which is more familiar with work-based education. In this context, vocational education is education-for-wor. The term education-for-work gives more meaning of vocational education as a kind of educatio which primary purpose is to make individual learners ready in workplace and have a brilliant career.

Vocational education is education production, serving the end of the economic system and said to have a social completeness. Vocational education / vocational in secondary level is focused on the preparation of individuals entering the workforce earlier. Vocational education should be oriented to the needs of the community (local, regional, national, international). Concern with it, SVES is very important for the development of secondary vocational education. Vocational education requires every person must learn to work because everyone has to work. Vocational education should be evaluated based on economic efficiency. Vocational education is economically efficient to prepare students for specific jobs in a society based on labor requirements. Vocational education will said good if it prepares students for real jobs that exist in society and their desire. Vocational education is efficient if it ensures the provision of manpower for work field. Effective vocational education should be linked to the labor market and planned based on the prediction of the labor market. It is inefficient if the vocational education students get jobs in fields that they follow.

SVES includes course of skills, study skills program, skill competencies and description of competence which is relevant to the need for secondary vocational education in VHS, relevant to the needs of stakeholders such as the central, provincial, district/city governments, bussinis and industry, the people who use vocational education, and learners. Vocational education is development not merely by using the instruments of education policy but also by using the instrument of social policy, economic, political, and employment (Atchoarena & Grootings, 2009). Development of vocational education requires policy of cooperation establishment, support and full participation of government organizations and non-government (read the business and industrial world), formed a consensus among stakeholders (Heinz, 2009; Hiniker & Putnam, 2009), proactive and responsive to changes that occur, and adopt a long-term strategy, responsive to changing global economic environment, changes in economic and political systems, and local cultural grounding (Bailey, Hughes, & More, 2004; 100; Clarke & Winch, 2007:130; Raelin, 2008:46). Opinion of Jobert, Mary, Tanguy and Rainbird (1997) cited by Clarke and Winch (2007:4) stated the need for interconnection between education and employment (Billet, 2009). Vocational education requires the full participation of business and industrial world, including vocational education user communities.

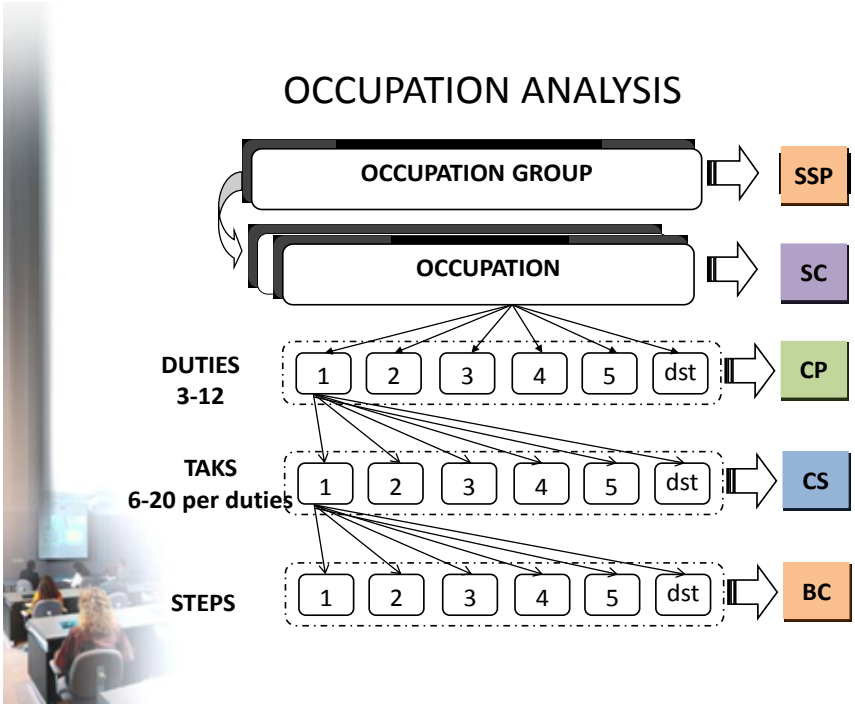
The existence of competence IQF, person is not longer viewed solely from the diploma but also to be considered in terms of competence. Competence can be obtained from the education,

training, developing their own experiences either informal or non formal. IQF is agreed upon nationally as a basis for the recognition of widely education result (formal, non formal, in formal or self-taught) that is accountable and transparent. With the IQF, will also occured a few important things in the vocational education system such as the Recognition of Prior Learning (RPL). IQF will build awareness of the quality of education providers in Indonesia to produce quality human resources in accordance with the descriptors qualification. It will also create a foundation for admission, access, and collaboration of our human resources in the international community then it will increase the competitiveness of the nation. IQF also encourages awakening country education profile with comprehensive data (Directorate General of Higher Education, 2011).

Based IQF, education in the VHS designed to produce graduate with the competencies at level 2 as a operator of single specific task, using the tools, information, and common working procedures, and demonstrate measurable quality performance, under the direct supervision of his superiors. VHS graduates have basic operational and factual knowledge of specific areas of work, so they able to choose solutions that are available to the common problems. Responsible for their own work and can be given the responsibility of guiding others.

2. Approach of DACUM Model

SVES as a spectrum that describes the vocational education needs of Indonesia in accordance with occupational pathway in industry or work place can be developed using the DACUM method. DACUM is an analysis for occupational / innovative work which is very well used for the development of vocational competence. DACUM is a very effective and quick in describing occupational / job into basic tasks, duties, and measures the performance of duties. DACUM analysis model is illustrated in Figure 1 below.



Picture 1. Analysis Structure in SVES Development

Based on Figure 1 above, the basic duties are a group of related tasks to prform one type of occupation/work, usually 3 to 12 main tasks per occupation/ job. The main duties is a competency profile (CP) of a skills competency (SC). Tasks are special unit of meaningful work to perform a basic task, usually 6-20 tasks per main task and 75-125 per job. Task in the SVES set as a competence standard (CS). Steps are the smallest element as step or spesific activity required to perform the task. There are always two or more steps per job. Steps later became the basis of competence (BC) of each CS. Statement criteria of the main duties are: (1) describes the field of employment, (2) consists of a verb, object, and usually a qualification, (3) stand-alone (without reference to the job), (4) serves as the title for a group of related tasks (normally 6 -20 duties), (4) it is general, not specific, the statement of work performed (usually 6-12/job).

Development of task statement is consider to several things following: (1) the verb must complete a written statement such as workers should be able to (for example: selecting, preparing, identifying, developing), (2) the object is objective which is acted by the workers (such as: tools, reports, customer), (3) qualifications: are words or phrases used to modify and clarify the task statement (such as: choosing computer equipment, prepare financial report). Criteria for task statement ,namely: (1) briefly describes the task in terms of performance, (2) commonly contains one or more qualifiers (not depend on other liability or tasks), (3) there must be an action verb and object that receives the action, (4) is explicitly stated once.

Skill Competency (SC) is a unit of education and training programs on VHS that based on a specific task or job, with education and training with duration of 3 or 4 years. Competencies are organized into normative subject group, adaptive and productive. Productive subjects are grouped into basic vocational competencies and vocational competence. The competency level of graduate appreciated economically in the minimal executive office at work. Competencies are acquired through learning process within a time limit of at least 1184 hours @ 45 minutes, marketable, reflecting the scope of competency that studied, using common terminology in the field of expertise. Skills Study Program (SSP) is a set of skill competencies based on object and characteristics of similar jobs or support each other in a science and expertise. All the basic of vocational competence on vocational skills should be the same. Raw material/process /product being studied in the expertise competence and expertise have characteristics similar objects, reflecting the scope of competence of a learned skill, marketable, using common terminology in the field of employment. Field of Study Skills is a collection of skills study program based on similiar work sector or support each parent in a science and expertise. Grouping skill study program has a prevalence in terms of knowledge and work, raw material/process /product in the employment sector have similar objects and characteristics, reflecting the range of skills courses are studied, using common terminology in the employment sector, and marketable.

SVES structure will be effective if it meets the needs of objectives of vocational secondary education in VHS. SVES describes compliance the needs of entire organization of secondary education vocational based on the complianv the need for skilled personnel in busiiss and industries. SVES development that describes the qualification of work competence and qualifications which is matching with needs of Indonesia and anticipation toward the changes that occur are not easily or simply made. How SVES can really describe the need for secondary vocational education organization in Indonesia that are relevant to the needs of human resource development, industrial development, regional, and local economies in the framework of decentralization of education, the development of the fulfillment of national development. SVES

development requires accurate data about the development workfield, level positions, the number and types of labor requirements, and the fundamental duty of a VHS graduate.

Good SVES can make the process and results of secondary vocational education efficient. The change of work competency that tends dynamic is requires a less rigid SVES. Moreover, the purpose of secondary vocational education is not solely for work. SVES need to be more generic and anticipative toward the changes of workplace demand. The rigid SVES has very large impact on the pattern of organization of vocational education. The rigid SVES is certainly require the fulfillment of teaching staff, particular facilities and infrastructure. If jobs change or occur saturation in fulfilling the work so VHS graduate will not be absorbed well whereas the cost of education for formation of skills tend to be very large.

SVES development requires improvement and articulation strengthening of both vertical and horizontal. Vertical articulation concern with the position adjustments and comptency substance content according to level 1 and 2. Vocational education as an education for employment related with the issues that meet the job seker community's needs with the needs of suppliers, providers and employers parties, as well as the distribution of the field and the field or type of work. SVES characteristics tend to lead to ready-use training. In the theory of vocational education called education which leads to fit individuals with the required work. To fit with education and vocational training with the kinds of jobs needed by society, according (Gill, Dar, & Fluitman, 2000; Boreham and Fischer; 2009) it is very difficult due to needs of the job changing rapidly and not easy to predict. Vocational education with “to fit” approach will be effective if the VHS has good cooperation in the placement of graduates in accordance with employment among households. Vocational education with the ‘to fit’ approach needed facilities and infrastructure and a large practicum materials. If graduates are skilled but not absorbed because of its limited workfied, vocational education will be in-efficient.

In a different dimension, education or vocational training designed to prepare individuals find work. This approach is further strengthened base of vocational competence and adaptive materials. Graduates are more open to enter the type of workfield. The only graduates problem exist in the ready –training graduate not ready-work graduate.. To be more flexible and adaptive, SVES must be designed for the fulfillment of education and vocational training which is able to prepare graduates for work (Pavlova, M., 2009).

SC characteristics that describe the type of a job /occupation presents the ability to perform a specific task, using the tools, information, and common working procedures. CS descriptions that describe the tasks of a fundamental duties of a job and step to perform the task must demonstrate measurable quality performance under the supervision of his superiors. Graduates of the VHS expected to have basic operational and factual knowledge of specific areas of work, so they are able to choose the solution that is available to the common problems. Responsible for their own work and can be given the responsibility of guiding others. Level 2 is the end of year 12 level of education in the third year in VHS. Development of vertical articulation requires adjustment program that is not too ambitious. It make graduates of VHS in technician/ analyst level. This is important because the burden of learning the VHS will be very heavy and bulky. Vertical articulation is also concerning with the arrangement of competency training program between semesters in a three-year learning program on VHS.

Horizontal articulation related to vocational basic competency standards arrangements for various PSK. The grouping of CS or tasks with the same characteristics of the primary tasks in a job/ occupation need alignment. This issue is important related to the fullfilment needs of facilities,

infrastructure, teaching staff, educational staff, and management. The CS development approach need to consider two approach the development of both specific approaches and generic approach. Some VHS in the region wanted buildings of CS as relevant CS compared with specifics CS such as Steel Construction Engineering, Wood Construction Engineering, Concrete Stone Construction Engineering. CS with basic duties should be less than 3 concentrations.

Thus SVES must describe the secondary vocational education needs for present and future. SVES that is relevant to the needs of stakeholders in this case the central government, provincial, district / city, VHS, businisss and industries, vocational education user community, and students are an important part in coaching VHS.

SVES structure consisting of a Field of Skills Study, Skills Study Program, and Skills Competency are pretty good and can give opportunities to develop and change. Six study areas of expertise are: (1) technology and engineering, (2) information and communication technologies, (3) health, (4) arts, crafts, and tourism, (5) agribusiness and agrotechnology, (6) business and management is quite extensive and including the development and fulfillment of job requirements. Six areas of study skills then grouped into 20 programs of study skills. From 20 programs of study skills divided to 121 competency skills. SVES structure tends based on vocational education characteristic that leads to the ready-use. This structure is good for vocational education that available, both in types and workfield. If there are not enough jobs available, the structure should be simplified so that SVES is ready to anticipate the various types of work in the field.

Utilization of SVES for the development and implementation of education in VHS should be used as a base for the development and selection program or competency skills, analysis of open and close the program or competency skills, curriculum development, development of learning or training. Therefore the development and training of secondary vocational education needs SVES that appropriate or valid with the demands of DU-DI Indonesia, the need for the implementation of vocational secondary education in VHS, anticipatory to the development of industry based on the knowledge and creative industries. SVES describe the spectrum of appropriate PSK and CS that held on VHS for vocational secondary education during 3 or 4 years.

Development of SVES in an effort to meet the needs of creative industry development should be based on cross-competency skills. It was not done specifically because the characteristic of creative industry is a combination between two or more skill competencies. The need for the development of creative industries in the VHS is very strategic. Creative industries are very precise develop on VHS because VHS fullfil the development requirements. Cross-competency skill development or competency skills program can be directed to the development of creative industries. In the field of fashion, creative activities related to the creation of clothing design, footwear design, and other fashion accessories design, manufacturing clothing and fashion accessories, line consulting of fashion product, and distribution of fashion products can be developed by including elements of skill competency fashion boutiques, garments, marketing/ sales, accounting, and even designing buildings for place of business.

Conclusion

SVES is a principal policy in the VHS development in Indonesia. SVES development needs analysis and a good academic studies ranging from mapping the types of work, the basic tasks of a job/ occupation, as well as step to carry out the job. A job or occupation that meets the fullfilment of the implementation of vocational secondary education for 3 or 4 years is set as a competency skill. The principal duties of CS or job describe competencies profile of that CS. Each of the main

tasks are performed into a number of task then it is expressed as a standard of competence (SC) from these CS. A number of BC describes the step of eah duty/ task. DACUM model approach is best used to analyze and develop SVES competence structure. To make SVES is not too ambitious so that it is necessary to pay attention with IQF. So SVES has the strength and good conformity vertical articulation.

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