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Proceeding

INTERNATIONAL SEMINAR
VOCATIONAL EDUCATION AND TRAINING

The Challenge for VET in Developing Skills for Today's Workforce

Yogyakarta, 18 May 2010

Graduate School
Yogyakarta State University
Indonesia

International seminar "the challenge for vet in developing skills for today's workforce"

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PREFACE

This proceeding compiles all paper from the invited speaker and call for paper in International Seminar on Vocational Eductaion and Traning held by the Graduate School of Yogyakarta State University in cooperation with the SEAMEO Voctech on 18 May, 2010. This seminar is conducted to celebrate the 46th Yogyakarta State University Anniversary.

The main theme of this seminar is "The Challenges for Vocational Education and Training in Developing Skills for Today's Workforce". Three sub themes are covered in this seminar: 1) Vocational and technical education curriculum for accommodating soft skills for today and future workforce, 2) Praxis and future teaching and learning soft skills, life skills, and employability skills in vocational education and 3) Assessment for soft skills, life skills, and employability skills teaching.

The committee would like to thank everyone involved, and those who have given contribution for the success of seminar.

Yogyakarta, 18 May 2010
Editor

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WELCOME ADDRESS FROM RECTOR
YOGYAKARTA STATE UNIVERSITY

It is a great pleasure for me to welcome you to the International Seminar on Vocational Education and Training "The Challenge for VET in Developing Skills for Today's Workforce" held in Graduate school, Yogyakarta State University on May 18, 2010. The theme is selected in line with the theme of the 56th Yogyakarta State University's Anniversary 2010 "Character Education"

Human resources development in the current era does not only demand high competent but also productive workforces. Due to rapid changes of technology, the produced goods and services will be obsolete within a shorter period of time, therefore without innovation and creativity in the design and process of production, the product will not compete in the global market.

In addition to hard skills, nowadays competent workforce needs more various skills commonly called soft skills, employability skills, and life skills, or common skills. Although these skills contain similar attributes and have intersection among them, they can easily be clustered into three categories namely personal skills, thinking skills, and social skills.

All nations face similar challenges and some have confronted the challenges which response are reflected in their educational policies. Different social and cultural context will fabricate different educational praxis in developing the required skills. This seminar is intended to provide opportunity for participants to share best practices, concepts, and experiences in cultivating values and developing skills as initiated for today and future workforce.

I would like to thank everyone who has participated in this seminar, especially for the guest speakers and presenters. I would say congratulation for Graduate School of Yogyakarta State University which has succeeded conducting this seminar.

I wish everyone can take great benefit from what is being discussed during this seminar. Thank you.

Rector of Yogyakarta State University

Dr. Rochmat Wahab, M.Pd, M.A

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WELCOME ADDRESS FROM DIRECTOR OF GRADUATE SCHOOL OF YOGYAKARTA STATE UNIVERSITY

Dear Rector of Yogyakarta State University, Distinguist guests,

Awang Alias Bin Hj Abubakar Director of SEAMEO Voctech Brunei Darrusalam, Prof. Tod Treat PhD University of Illinois, USA, Prof. Jailani Moh Yunos, Fice Counselor, UTHM Malaysia, Prof. Slamet PhD YSU, Invited speakers, The Dean the faculty under YSU, the Participants, Ladies and Gentlements

Assalamu'alaikum wr.wb.

We are very happy and proud to welcome you in The International Seminar on Vocational & Technical Education, held in the Graduate School, in accordance with the 46th Anniversary of Yogyakarta State University.

On be half of Graduate School of Yogyakarta State University first of all, I would like to thank to all of you in this great specific event we can gather and enjoy this morning in beautifull campus Yogyakarta. I would also like to express our deep appreciation to Mr Awang Alias bin Abubakar, Director of SEMEO Voctech Brunei Darrusalam, Prof. Tod E Treat PhD, Program management of Collaboration between YSU and the University of Illinois, USA, Prof. Jailani Moh Yunos, PhD, Fice Counselor, UTHM Malaysia, Prof. Slamet, MA, MLHR, PhD, Yogyakarta State University to attend and joint as guest speakers in this seminar.

Specific thank convey to Dr. Paryono, SEAMEO Vochtech, Bruney Darussalam, for their kindly participation as steering committee in this Seminar.
Asean Free Labor Agreement (AFLA), Asean Free Trade Agreement (AFTA), and china Free & Trade Agreement, have stimulated the establishment and development of multinational corporation (industries) among the SEA countries Asia Pasific. Labor forces from a SEA can find a job in the member countries legally and protected by law. It has impact on many aspects: (1) increasing competitiveness in finding job, (2) open the opportunity to job market for workforces, (3) increasing the quality requirement standard of products and services, (4) increasing the diversity of competencies to do the job, (5) need for improving work culture in global era.

Vocational education have the significant roles in preparing students for job should try to enhance the quality of workforce in order meet the need of skilled workers and technicians in diverce vocations.

The theme of the Seminar "The Challenge for VET in Developing Skills and Work Culture for Todays Workforce" hope fully through its papers presented in this seminar, will give knowledge about (1) vocational and technical education in the global era interns of curriculum development, (2) current and future teaching and learning of soft skills, life skill, and employability skills. (3) assessment of teaching and learning and (4) how to develop work culture and morale in Vocational and Technology Education

In first session of this Seminar, One keynote paper and three invited papers will bw presented that are considered as the main papers, will talk about "Vocational and Technical education challenge, job opportunity, policies and processes as very significant and interesting aspects for facing the wave of globalization". The aims of the seminar will be: to built network and collaborative program between YSU and related institution in vocational education, creating exchange program for students and staff to share advance and having experience internationally, creating a network of vocational oriented institutions that can provide experiences, support, and opportunity for faculty and students, to establish a Vocational development center that can produce information in vocational area.

Twenty four papers will presented during the second session and the rest 10 papers as proceding talk about teaching learning, e-learning experiences and practices, blending pedagogical concept and information technology in blended learning.
150 participants in this seminar that involving 4 groups: Graduate School Students, College/university teachers, secondary school teachers, Vocational High School teachers.
I hope that this seminar will give benefit to the students, academic staffs, vocational teachers. Institutionally, I do hope that this event will perform as the starting point and the implementation for YSU future collaboration in research, development, and utilization.

In this regard, I ask pak Rektor to give speech and open Formally thi s seminar
Thank you

Yogyakarta, 18th May 2010
Prof. Soenarto Saputro, MSc, PhD
Director of Graduate School, Yogyakarta State University

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WELCOME ADDRESS FROM THE CHAIRMAN OF THE COMMITEE

As the committee chairman, I would like toextend a warm welcome to all presenters and participants to Yogyakarta. I am so pleased to see so many colleagues, experts, and professors from the United State, Malaysia, Brunei Darussalam, and Indonesia, all in this international seminar.

Vocational and Technical Education is a subject very close to our heart. It is valued all over the world for its ability to develop human resources and contribute to the economic growth. This seminar is conducted as collaborative effort between Yogyakarta State University and SEAMEO Voctech of Brunei Darussalam to build up roles to enhance the growth of vocational and technical education in South East Asia.

The Challenge for VET in Developing Skills for Today's Workforce" is a very inspiring theme to solve complex problems in preparing youth to be productive human. This seminar will allow the participants to present the latest research findings and at the same time share new innovative ideas of learning skills, and best practices in developing skills for today and future workforce.

I would like to take this opportunity to give my highest gratitude to all sections of the seminar committee and everyone involved in doing this excellent job; to the academic section who have reviewed the submitted papers so that the program handbook and soft proceeding are at hand of every participant. In this occasion, I would also like to congratulate the participants whose papers have been selected to be presented in this seminar.

I hope the seminar can nourish the communication and co-operation between educators, managers and stakeholders. I thank you for your presence and active participation in this seminar. I urge you to continue building up ideas that you have discussed together over one day and to bring them back to your countries so that we can achieve our shared vision of further developing and strengthening vocational education for future generations.

Thank you very much indeed.

Prof. Pardjono, Ph.D.
Chairman of VET International Seminar 2010
Head Department of Vocational and Technology Education
Graduate School, Yogyakarta State University

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THE SCHEDULE OF INTERNATIONAL SEMINAR
"The Challenge for VET in Developing Skills for Today's Workforce"
Graduate School, Yogyakarta State University
Tuesday, 18 May 2010

HOUR	AGENDA	PRESENTER	PIC
07.30-08.00	Registration		Secretariat
08.00-09.00	Opening Ceremony Traditional Dance • Report and Welcome Address • Speech and opening of the Rector	**Prof. Soenarto, Ph.D.** (Director, Graduate School, YSU) **Dr. Rochmat Wahab, M.A.** (Rector of YSU)	MC: Ashadi, S.Pd.
09.00-09.45	Keynote speech	**Mr. Alias bin Haji Abu Bakar** (Director, SEAMEO VOCTECH, Brunei Darussalam)	Moderator: Suhaini M Saleh, M.A.
09.45-10.15	Coffee Break		
10.15-12.15	Panel Session	**Prof. Dr. Tod E. Treat** (Illinois University at Urbana, USA) **Prof. Dr. Jaelani Md. Yunos** (UTHM Malaysia) **Prof. Slamet, Ph.D.** (Yogyakarta State University)	Moderator Basikin, M.Ed
12.15-13.00	Lunch Break		
13.00-14.30	Parallel Session I (3 groups)		Moderator: Ghani Johan, M.A.,Dr. Bruri Triyono, Istanto, M.Pd.
14.30-16.00	Parallel Session II (3 groups)		Dr. Widyastuti Purbani, Asruddin B. Tou, Ph.D.
16.00-16.15	Closing	Prof. Pardjono, Ph.D. (The Chairman of the committee, YSU)	

Parallel Session
Theme 1. Curriculum

Time	Presenter	Paper
13.15 – 14.15	Paryono	ISSUES, CHALLENGES, AND OPPORTUNITIES IN SKILLS DEVELOPMENT IN SOUTHEAST ASIA: SEAMEO VOCTECH'S PERSPECTIVES ON TVET
13.15 – 14.15	Anas Arfandi	Empowering Soft Skill and Life Skill to Improve Graduate Competence
13.15 – 14.15	Hendra	Virtual Laboratory to Support the Student's Practice and Employability Skills in Vocational Education
13.15 – 14.15	I Made Suarta	A Hypothetical Model for Developing Employability Skills Student
13.15 – 14.15	Machmud Sugandi	Integrating Soft Skills into Vocational High School Curriculum on Civil Engineering
Break		
14.30 – 15.30	**Mr. Putu Sudira**	**Vet Curriculum, Teaching, And Learning For Future Skills Requirements**
14.30 – 15.30	**Siti Mariah**	**Softskills Integration in The Practical Learning for the Industry Related Job Readiness**
14.30 – 15.30	**Y. Gatot Sutapa Yuliana**	**The Re-Configuration of Vocational Schools And Its Prospects to Provide Innovative and Competitive Vocational Workforces**
14.30 – 15.30	**Soeryanto**	**The Development of Life Skill Program Within the Vocational Education and Training Curriculum**

Parallel Session
Theme 2. Praxis Learning

Time	Presenter	Paper
13.15 – 14.15	Ahmad Dardiri	Soft Skills: A Solution for Graduates' Competitiveness Improvement of Vocational Education in Global Era
13.15 – 14.15	Bambang SHP	The Development of Entrepreneurship through Vocational Secondary High School
13.15 – 14.15	Bernardus Sentot Wijanarka	Improving Lifelong learning Skills Through The Use of Computer Application Software as a Learning Tool
13.15 – 14.15	Dewi	Experiential Learning in Entrepreneurship Education to Face the Challenge of Today's Workforce
Break		
14.30 – 15.30	Isma Widiaty, Dadang Lukman Hakim, Suciati	Acquiring Soft Skill by E- Learning
14.30 – 15.30	Istanto Wahyu Djatmiko	The Teaching Strategies in Vocational Education in The Knowledge Era
14.30 – 15.30	Samsul Hadi	Improving TTVET Student Competency on Computer Programming using English in Teaching Learning Process
14.30 – 15.30	Sudji Munadi	Development of A Modul for Computer Aided Contextual Constructivism Learning in the Subject of Machining

Parallel Session
Theme 3. Assesment

Time	Presenter	Paper
13.15 – 14.15	Ana, Ade Gaffar Abdullah, Liunir Z	Assessment of Soft Skill in Project-based Learning Using Fuzzy Grading System
13.15 – 14.15	Deny Budi	Information System to Support Facility Maintenance Management Implementation in Vocational High School
13.15 – 14.15	K. Ima Ismara	Enhancing Perceived Behavior Control As Soft Skill by Adopting Internet in Learning Toward Vet
Break		
14.30 – 15.30	Budi Santosa	Integrated Competency-based Assessment in Vocational Secondary School in Yogyakarta
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14.30 – 15.30	Muhamad Ali	E-learning Readiness of Vocational Secondary High School in Enhancing Global Workforce

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Integrating Soft Skills into Vocational High School Curriculum on Engineering
(R. Machmud Sugandi)

VET Curriculum, Teaching, and Learning for Future Skills Requirements
(Putu Sudira)

The Teaching Strategies in Vocational Education in the Knowledge Era
(Istanto)

The re-configuration of vocational schools and its prospects to provide innovative and competitive vocational workforces
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(Ahmad Dardiri)

The Development of Entrepreneurship through Vocational Secondary High School
(Bambang SHP)

E-Learning Readiness of Vocatiional Secondary High School in Enhancing Global Workforce
(Muhamad Ali)

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SEMINAR ON VOCATIONAL EDUCATION AND TRAINING
"The Challenge for VET in Developing Skills for Today's Workforce"
Graduate School, Yogyakarta State University
Tuesday, 18 May 2010

Keynote Speech
Enhancing TVET Relevancy and Standards in the 21st century
Awang Alias bin Abu Bakar
Acting Director, SEAMEO VOCTECH Regional Centre

Bismillahirahmanirahim

- **Dr. Rochmat Wahab, M.A.** (Rector of Yogyakarta State University)*;*
- **Prof. Soenarto, Ph.D.** (Director, Graduate School, YSU);
- *Distinguished guests and speakers;*
- *Conference participants and Ladies and Gentlemen;*

Assalamualaikum, Salam Sejahtera and a very good morning to you all!

It is my greatest honour and pleasure to be here in this important SEMINAR ON VOCATIONAL EDUCATION AND TRAINING to address the "The Challenge for VET in Developing Skills for Today's Workforce".
Let me express our utmost appreciation to State University of Yogyakarta for hosting this seminar in collaboration with other organisations, including SEAMEO VOCTECH Brunei Darussalam. For your information, State University of Yogyakarta and SEAMEO VOCTECH very recently, on the 1st March 2010, have signed an MoU to strengthen our collaboration.

Ladies and Gentlemen: Technical and vocational education and training in the Southeast Asian region, to ensure a relevant presence and sustainability during these 21st century needs a reinforced attention on its relevance especially to the needs of today's work market and enhance its standards.

In this paper, I would like to focus my paper on addressing the two issues; Enhancing TVET Relevancy and Standards in the 21st century.

Enhancing TVET Relevancy

TVET programmes must be relevant, not only to the needs of business and industry but more importantly to the needs of our students. Business and industry are our important partners to plan and develop our programmes, and to implement or run our programmes. This, however, doesn't mean that Business and industry will dictate TVET programmes, especially in the formal schooling. The programmes should still be general enough so that our students can have options in terms of where to work. We need to teach skills for employability, not skills for employment that tend to be too specific or narrow.

Formal skills recognition and enhanced skills recognition systems are essential in the labour market and in economic downturns; the sorting process on workers with the necessary skills can access appropriate jobs by showing potential employers certificates that attest to their skills (Ibrahim, 2008).

To bridge a competitive workforce, education and training providers on industry needs could define and measure standards for specific skills and even develop industry measures of skill attainment (Murphy, 2004).

Entry level competency examinations, licensing mechanism examinations, certification, accreditation, assessments, and articulation and other skills standards are now in place in most countries, and on different stages of development and implementation.

In the era of globalisation where the demands of qualified workforce are increasing, the knowledge and skills required are more complicated, and the job mobility is high; these have affected policies and practices in the area of vocational and technical education and training, especially in skills standards, skills assessment and certification. After examining what has been happening in the world, and more specifically within the SEAMEO member countries, the followings are the salient trends in the area of skills standards:

1. *From supply-driven to demand-driven qualification standards*. Training providers used to play a dominant role in the development qualification or skills standards.

The roles of other training stakeholders, such as business and industry representatives and professional associations used to be very minimal depending on the request from the training providers. In this era where the changes of demands occur very rapidly, the roles business and industry are very crucial in providing input about the skills needed in workplace. The input is very valuable to the training provider not to dictate the specific skills needed by the trainees but as one of many inputs to prepare trainees for their employability.

2. *From partial-assessment to holistic assessment of qualification.* Most of the common practices in skills assessments are through examination and skills demonstrations. These types of assessments are still very important but aren't enough to measure candidate's quality and traits comprehensively and reliably since tests and demonstrations are administered in a limited time and in a limited scope. The assessment of documents, such as portfolio, is considered very crucial to provide input on candidate's history and significant accomplishments, including remarks from previous employers, projects completed, personal experiences and others.
3. *From single assessor to multi assessors.* Skills assessment that previously conducted by training providers alone is considered insufficient in this era. The issues of un-similar criteria used by training providers, the tendency of giving high marks to their own trainees have affected the credibility of training providers as a sole assessor. The inclusion of business and industry, professional associations, and/or labour organisations is necessary to enhance the recognition of the certificates.
4. *From measuring knowledge and skills acquired in the formal learning in VTET institutions to a combinations of formal, informal, non-formal life-long learning.* Considering that learning processes can take from various places and from various ways, the assessment should incorporate these different types of learning. The distinction among the three are getting blur and should not be over emphasized. The more important consideration is how well the candidates can perform the jobs well.
5. *From focusing on "hard" skills to a combination of "hard" and "soft" skills assessment.* Various studies have showed that in order to perform the job successfully, an employee should not only master the specific technical skills, but he or she should possess other important attributes, e.g. team work, work ethics, and

communication skills. This "soft skills" are equally important if not more than the "hard skills" and therefore worth considering to be part of the assessment process.

6. *From local orientation to more global orientation in terms of scope and recognition.* Skills standards are based on the demands from the market where the candidates are planning to work. Realizing that labour mobility is very high within and across nations, addressing the needs of local or even national demands deems insufficient. The scope and the contents should be broad enough to provide candidates with more flexibility to work not only at the local level, but also at national or even international level. The candidates should have flexibility whether they want to work for others or work for themselves.

Raising the Quality Standards of TVET

In this era, the nature of work is becoming more complicated, the mixture of hands-on and mind-on exits almost in any type of works. Every country is trying to raise the skills of their workforce. Referring to book titled, "The other way to Win" by Prof. Kenneth Gray, in order for an individual to be competitive, he or she should posses 3 skills, work ethic (level 1), general or basic skills (level 2), and special skills (level 3). The higher the level of someone skills, the more competitive the person is. To reach level 3, however, some should posses the skills of level 1 and 2; otherwise he cannot be competitive. This is also inline with the paradigm of high skills-high wage, low skills-low wage. Those who posses level 1 and 2 skills can be employed but will have lower salary compared to those who posses level 1, 2, and 3 skills.

Discussing about the skills standards, I would like to share some of the current issues and trends in skills standards in Southeast Asia.

I would like to highlight some salient issues and challenges faced by Southeast Asian countries in skills standards, especially focusing on three areas: content and scope, assessment, and certification, this section will s.

1. *Standards*

   The issue of what should be included in the skills standards, the basic (adaptive) skills, the specific (productive) skills, and the attitude/normative or soft skills should be addressed. In terms of scope, whether the skills standards will be focused on the

local, national, regional, or international level demands is another area that should be elaborated and agreed upon.

2. *Assessment*

The issue of who should assess the trainees and techniques or approaches of assessment used should be clarified and agreed by relevant stakeholders. Currently, training providers are the sole assessors. Considering that training providers are not independent agency due to conflict of interests, an independent or external assessors comprising of different stakeholders are necessary, such as business and professional association.

The assessment that relies too much on exams and skills demonstration should be accompanied with documents that can be supplied by the participants in the form of portfolio.

3. *Certifications*

Who should issue the certificate is an issue because the recognition of the certificate can depends on it. A reliable entity or body should be formed that are recognizable by business/industry where the certificate is used. If the certificate is meant for national level, then a national body should be formed; similarly if the certificate is for regional-wide, a regional body should be formed representing important stakeholders.

- **Concluding remarks**

  The efforts to develop and implement skills standards at different levels have been taken in Southeast Asia. Some countries in the region have come up with skills qualification frameworks but have not fully implemented them due to various reasons.

- Realizing the importance of skills standards for training providers, learners/trainers, and employers, we hope that we could come up with solutions to assist countries in Southeast Asia, especially those who still face problems of implementing national skills standards. The establishment of national skills standards will be very important factor in supporting or enhancing the

implementation of the regional skills recognition that currently is being developed and pilot tested in certain areas, such as in Hospitality and Tourism.

- SEAMEO VOCTECH as a regional Centre is very committed in partnership with other agencies to take active roles in assisting the member countries in developing and implementing the national and regional skills standards and recognition.
- Lastly, Once again, thank you. We look forward to fruitful discussions. Wabillahit Taufik Wal-hidayah, Wassalamu ‘Alaikum Waramatullah Wabarakatuh.

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PROCESS, PROXIMITY, AND COLLABORATION: INDUSTRY TIES TO VOCATIONAL EDUCATION AND WORKFORCE DEVELOPMENT

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A. Introduction and Overview

Workforce development has long been an area of interest for policy makers and educators, but there has been particular interest since the international recession that began late in 2007. At the same time, debates remain regarding how to best meet preparation needs for students in these systems. The purpose of this paper is to review the systemic approaches and tensions in the United States. The paper will then discuss programmatic efforts to create economic vitality in communities, with particular emphasis on the US community college. Finally, the US system will be compared to the Indonesian system, highlighting areas of research which might be of interest to Indonesian policy makers and faculty in areas of workforce development.

In the United States, the term "vocational education" conjures up images of students massed industrial-style to be trained how to cook, to farm, or to operate industrial machinery on a factory floor. While there is nothing wrong with these images, the mental model that comes with them is one of limited student capacity and of vocational education as a target for work that is "less than." In the past two to three decades, the United States' policies have changed and the term vocational education has fallen into disfavor. In its place, the term "career and technical education" is now used to describe education intended to afford more or less direct access to work. It is not entirely coincidental that the movement away from vocational education corresponded to the dramatic growth of US community colleges from the mid 1960s to the mid 1980s. Given these changes, I will hereafter refer to US vocational education as "CTE."

B. US Policy Considerations

From a policy perspective, the US targets programs that lead to an industry recognized certification or a degree with career emphasis. Emphasis of funding has been focused on alignment between courses taken in high school and college (Tech Prep), on developing interest and aptitude for particular careers, and on development of workplace competencies. In an effort to further align pathways to meet CTE aims, sixteen Career Clusters are currently recognized by the Office of Vocational and Adult Education (OVAE).

• Agriculture, Food, and Natural Resources • Architecture and Construction • Arts, Audio/Video Technology, and • Communications • Business, Management, and Administration • Education and Training • Finance • Government and Public Administration	• Health Sciences • Hospitality and Tourism • Human Services • Information Technology • Law, Public Safety, Corrections, and • Security • Manufacturing • Marketing, Sales, and Service • Science, Technology, Engineering, and • Mathematics • Transportation, Distribution, and Logistics

The concept of the career pathway is focused on enhancing transitions between high school, higher education, and the workplace by creating a "coherent, articulated sequence of rigorous academic and career courses….developed, implemented, and maintained in partnership among secondary and postsecondary education, business, and employers" (Warford, 2006, p.8). However, the concept is not limited to traditional aged students and has promise for adult learners, as well. Thus, CTE extends beyond secondary education and into postsecondary education and beyond.

Changing Nature of Work

More important than change in the names and federal policies, however, are the changing nature of work and workplace preparation. Reports, such as *Tough Choices or Tough Times* suggest that globalization has placed the United States in competition with other nations for jobs that are "routine." The report recommends that secondary education extend core disciplines like math, science, and writing but also include more creativity, design, and innovation as a way to maintain US competitiveness (NCEE,

2009). This echoes studies findings that work has come to rely more heavily on knowledge and technology with shorter life cycles for the nature of the work itself (Jacobs & Park, 2009). In other words, CTE is not the "vocational education" that still resides in the mental models of earlier generations of Americans, but a constantly changing milieu in which workers are likely to need updating and new learning, even if they remain in the same job. Expertise is a now a process, not a level of aptitude and CTE must incorporate meta-cognitive skills to allow self directed learners to continually improve, to allow coaches and mentors to better guide development, and to recognize a wide array of "spaces" in which learning might take place. There is also an increasing recognition that technical expertise alone is insufficient to ensure employability – "know how" must be accompanied by "know who" and "know what" -- contextually embedded practices and networks, professional expectations, ethics, values and norms (Inkson, 2001).

Finally, ownership of competency development is shifting from places of employment to the individual employee (Hiltrop, 1996; Capelli 1999; Baruch 2004; Parker, Arthur & Inkson, 2004). Several factors contribute to this phenomenon. First, competitive pressures drive organizations away from career-long commitments to employees (Casco, 2002; Arthur, Khapova, & Wilderom, 2005). Generational values regarding loyalty and priority to a specific employer also differ with younger generations showing less long-term commitment to one employer. Finally, globalization and technology shorten the lifespan of particular skills, leading to an increased demand for reskilling and management of personal portfolios (King, 2004; Hind, 2005). The movement toward individual career management suggests that individuals are likely to seek skills oriented education, particularly while in transition between jobs, and to do so in a way that enhances their portfolios.

While policies, work, and the workers' career self-management are in flux, the CTE environment in the US is well met by models found within the US community college.

The US community college as CTE provider

The community college is distinct in international higher education in providing multiple roles and paths. Each state has a different approach to funding and governance, however there are some important commonalities pertinent to this discussion. All community colleges are subject to a combination of state and local control. The federal government, at present, has a very limited role in governance. Some states, like Illinois, have very strong local control, with elected Boards of Trustees, and limited coordination at the state level. All community colleges derive their funding from three primary sources: state, local, and student tuition. Federal money generally goes to support students directly or special programs, which includes CTE, but the funding levels are limited. Finally, increased efforts to gain support from local community sources and business, as well as grants, can supplement community college revenue streams. The importance of these facts for CTE lie in the fact that community colleges can create programs that meet local goals, and do so quickly, often in less than one year. Few universities focus on CTE and can adjust their curriculum this quickly.

Students who enter the community college do some from multiple paths: directly from secondary education (A), from other postsecondary institutions (D), or from work (E). Once at the community college students choose curricula that may skill them for work (C) or for completion of a bachelor's degree (B). Some students engage in transfer swirl, which means they achieve advanced degrees in general studies, but find they need additional skills to find meaningful work or return to community college after spending time at a four year institution. Additionally, students may come for particular programs without prior experience or even a high school degree. Thus community colleges are ideally positioned to meet workforce needs and frequently do so in order to meet their local community context. Depending upon the level of state interest or of local leadership and vision, programs may also be put in place to meet national needs, as well.

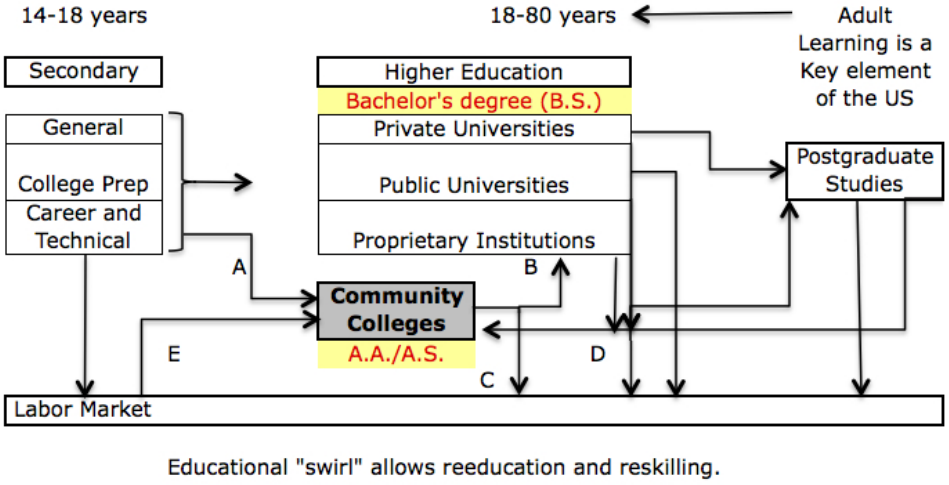

Figure 1: US Higher Education (Treat, 2009)

The US community college provides a central core for CTE. More than half of all enrolled college students in the United States are in community colleges and community colleges are the primary provider of nurses, firemen, technicians, and other career and technical fields. The community colleges accept all students, but CTE programs frequently have selective admissions and testing to ensure students are prepared. In its inception, community colleges provided two year degrees, known as the associates of applied science (AAS), usually 60 credit hours. However community colleges now offer shorter certificate programs (12-18 credit hours) and longer certificate programs (30 or more credit hours), as well as noncredit and corporate training. Certificate programs are almost entirely fulfilled by courses specifically addressing skills needed for the field, while AAS programs include a small number of general education courses intended to aid students in critical thinking and lifelong learning capabilities.

Three-fourths of students who enter the community college lack skills in math, reading, and writing at the secondary level and must begin their work at the community college taking developmental courses in these areas *before proceeding*. Research has shown, however, that students who are unable to begin their education for work because of full courseloads in developmental coursework, struggle to complete. Many programs now aim to provide developmental and CTE coursework *concomitantly*. Several novel programs have been designed to provide developmental education *integrated* with CTE work, so that writing might focus on creating technical reports, math might be applied to

the kinds of calculations that are needed for the type of work, and CTE course requirements will have a heavier emphasis on the use of these skills. Despite findings that point to success for students in these programs, faculty in the core disciplines can be resistant to integration on the grounds that standards have been compromised.

In the end, the ability of CTE/vocational education to provide quality career and technical education in a changing environment relies upon the programs' abilities to fit into an individual's competency development in ways that impact employability and socioeconomic growth. Many studies, including some presented at this conference, note that high quality education for work is based on (a) a degree of fit with the actual work practice, (b) development of competencies on "industry standard" equipment, (c) highly qualified teachers with industry knowledge, if not experience, (d) attention to both technical and "soft' skills, and (e) metrics of accountability to ensure quality. But how are institutions to achieve this? In the remainder of my talk, I hope to speak to each of these in light of the US environment, and suggest that workforce development should be part of a broader collaborative effort towards economic development.

Process, Proximity, and Collaboration

A conceptual framework of process, proximity, and collaboration provides the mechanism for ensuring that CTE programs meet the five standards. The framework is based on the results of qualitative research and informs both research and practice. The conceptual framework is shown in Figure 2.

Process refers to the method by which curriculum is developed. When curriculum development is uncoupled it occurs independent of industry influence. A symbolic process refers to the creation of advisory panels that meet periodically to meet a policy or political mandate, but who have little influence over the curriculum aside from making recommendations. Periodic processes are those in which industry experts are consulted on a regular but infrequent basis. In periodic processes, the recommendations and criticisms of industry and government experts are taken seriously. Integrated processes are those in which the curriculum is continuously reviewed by education, industry, and government experts and refined in order to meet current and emerging needs. An empirical example of this is an institution with heavy involvement in curriculum process found that many of its programs had a lifecycle of less than 24 months. Rather than disband its curricula, industry regularly aids in revision of a

flexible, short certificate supported program than ensures that students can focus on areas of interest and receive needed training in time to utilize it in the industry (Treat, personal observation).

Proximity refers to the degree of activity by industry agents in delivery of CTE programming. Uncoupled, a CTE program is delivered entirely by college staff with no involvement by industry. Distant proximity refers to periodic activity of low-level nature, such as a field trip or guest lecture. Near proximity refers to regular industry involvement of low level, such as donation of resources to ensure that industry standards are met, short term job shadowing, or periodic lectures. Intertwined proximity refers to situations in which the industry involvement is regular and high, such as placement and hiring of interns, clinical activities in which industry experts act as instructors, and in which faculty come from industry ranks in intentional programs. In empirical example of high proximity is a case of a virtual veterinary technician program in which students spend more time being supervised and assessed by veterinarians in clinical settings across the United States than they do on the campus in which they are earning their online degrees. The students' learning outcomes attainment and job placement are outstanding (Benson, Johnson, & Treat, *et al.,* 2005).

Finally, collaboration refers to the degree of strategic involvement in broader regional economic strategy. In uncoupled situations, a college may develop a CTE program without industry involvement because it sees opportunities for students to earn jobs. In loosely coupled collaboration, the industry or government may be approached in an *ad hoc* or irregular fashion for advice and early input on advisory councils, or these entities may introduce a topic for consideration by the college. In tightly coupled systems, all three entities (colleges, government, and industry) commit to keeping each other informed as to the nature and potential growth, using mechanisms such as task forces or regular meetings. In reflexive systems, colleges, industry, and government entities develop broad based economic strategies in which government policy; industry decision making related to location, hiring, and training; and college decisions related to programming related to workforce development all occur in tandem. An empirical example of this level of engagement is the development of a wind energy technician program that is coupled to a broader economic development initiative in a rural US county (Treat, 2010).

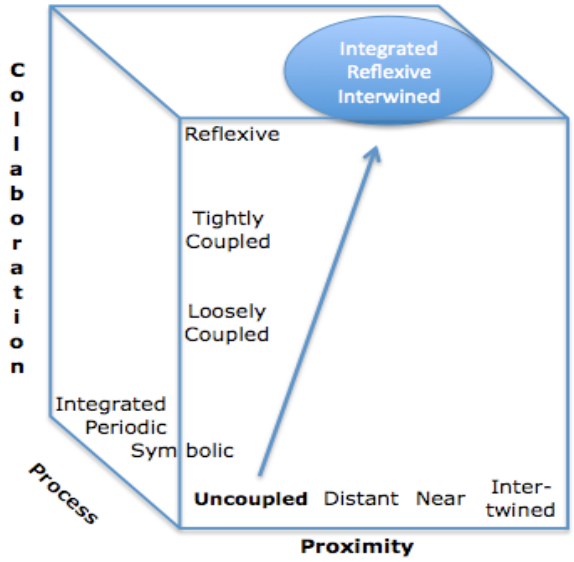

Figure 2: Conceptual framework for economic and workforce development through industry-government-academic collaboration.

In the US, it is common to gain industry input at the outset of a program's development through an advisory committee or DACUM process. It is also common to pursue internships and equipment donations that meet industry standards from companies in the field. As the conceptual framework highlights, however, opportunities remain to enhance the degree of influence industry has on revision of the curriculum, the "closeness" of the industry in meeting learning needs and the willingness of local companies, government entities, and the colleges to lock into a "triple helix" of collaboration for economic and workforce development.

Opportunities for research

While the US community college continues to provide CTE programs with significant impact on the US economy, the opportunity for research is great. In fact, in the United States, too little research is done on key questions related to CTE that might impact policy level decision-making. Key amongst these questions are:

- How does the funding and governance context impact the evolution of community college programs toward meeting local and national needs?
- What is the right mix of core CTE courses and general education courses needed to provide workplace skills and preparation for lifelong learning?

- How do success rates (persistence, completion, placement, on job retention) of CTE students compare when for completion of short term certificates, long term certificates, or AAS (2 year degree) programs?
- Does facilitation of work skilling and reskilling through certification lead to increased attainment of further degrees, socioeconomic well-being, or short cycle reskilling? Does the latter enhance socioeconomic well-being or limit it?
- With shorter lifetimes for work related skills, should CTE focus more on near transfer skills or far transfer skills? How is technology used? Should swirl be part of planned policy? How are transfer degrees impacted?
- What is the role of short certificates focused on individual career development (such as entrepreneurship)?
- How do success rates (persistence, completion, placement, on job retention) of CTE students compare when developmental coursework is (a) unnecessary due to required skills, (b) required before CTE coursework, (c) required concomitantly with CTE coursework, and (d) integrated with CTE coursework?
- How closely aligned is the curriculum with the reality in industry? Are industry experts involved in helping develop the curriculum? Are they recruited to help in instruction? Assessment? What resources are provided by the industry to ensure industry standards?
- Is workforce development part of a broader economic development strategy? Which stakeholders are "at the table?" Are college decisions regarding programs based on current or future forecasts for employment?

If we accept the notion that CTE is intended to prepare students for the workplace, and we accept the long held notion that CTE quality is based on the five factors mentioned above, we must revisit our mechanisms for creating and revising curricula, as well as the content we intend to transmit to students. We must also reconsider our notions of how students will enter and exit our institutions and accommodate those needs. Finally, we must use research to inform models that assure that once we educate students for meaningful work, meaningful work will be available.

Implications for Indonesia

In addition to a call to my US colleagues to better understand what we are trying to do in CTE and determine the effectiveness of these efforts, I raise these questions here in Indonesia because they are common questions needed to improve the human condition both here and in the US, and not in a spirit of competition, but of collaboration. Like all national education systems, the US system has strengths and weaknesses. In light of the dramatic efforts and changes taking place in the Indonesian system, however, the issues and tensions that are present in the US system are likely to provide a lens through which Indonesian faculty and policymakers can view their own efforts to improve.

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PRAXIS OF TEACHING AND LEARNING SOFT SKILLS OF HIGHER TEACHER EDUCATION LEVEL IN MALAYSIA

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Abstract

Praxis of teaching and learning soft skills in the context of this essay is the process of putting theoretical knowledge into practice or of translating an idea into action. Even though there are autonomy in the design and delivery of programmes, the provision of higher education in Malaysia is regulated by the Malaysia Qualification Agency (MQA).

The MQA has specified seven soft or interpersonal skills that all graduates of institutions of higher learning in Malaysia must master which being considered as critical in generating holistic human capital to counter global competitiveness. The seven soft skills learning outcomes are Communication Skills, Critical Thinking and Problem Solving, Lifelong Learning and Information Management, Group Working Skills, Entrepreneurship Skills, Ethics and Professionalism, and Leadership Skills. At institutional level, the soft skills are spelled out as learning outcomes or Graduate Skills Attributes (GSA) through the adoption of Outcome Based Education (OBE) programme design as well as other curricular and co-curricular activities.

This paper highlights the praxis of transforming policy into the curriculum design process for execution and implementation at classroom level. The focus has been placed on fundamental aspects of how process being crafted for the technical teachers education programmers at the Faculty of Technical Education, Universiti Tun Hussein Onn Malaysia.

Keywords: soft skills, outcome-based education, praxis, model, learning outcomes.

A. Introduction

Malaysia is now at the mid-point in its journey towards Vision 2020 and is transforming to become a developed nation during the second phase of a fifteen year period. The Malaysia's New Economic Model launched in 2010 has vision of its future advocates the development of a human capital of highest quality. Everything we see in this world today has changed tremendously in terms of technological development, and most work needs to operate globally in order to survive the competition which exists in the world these days. This change has created an impact on the nature of work where a high level use of technology is a necessity to compete in the global arena. (Jailani et al, 2006). Hence, a more flexible workforce with advanced technical skills coupled with well developed generic skills such as creative thinking, problem solving and analytical skills, is greatly needed by the employer in industry in order to meet the challenges faced by business. The pressure on the providers of higher learning, including Technical and Vocational Education and Training (TVET) institutions is that they must constantly

keep abreast with the needs of the future workforce at the industries and must be responsive to these changes (Ministry of Higher Education Malaysia,2006). The prime task is more to ensure that education and training is market driven and responsive to the changing needs of the various sectors of an economy. The model also broadly redefined the scope of education and training sector as primary a means of skilling more and more young workers, and of providing professional and in-service courses in life-long (re)learning; rather than about expanding the minds and developing the capacities of citizens (Hilgert and Leonard, 2000).

1. Soft Skills

From the employers' perspective, 'soft skills or employability skills' seems to refer to 'work readiness', that is, possession of the skills, knowledge, attitudes and commercial understanding that will enable new graduates to make productive contributions to organizational objectives soon after commencing employment (Mason, Williams & Cranmer, 2006). Employability skills are those basic skills necessary for getting, keeping, and doing well on a job (Maskell and Robinson, 2002). Soft skills are generic in nature rather than job specific and cut across all industries, businesses, job levels from the entry-level worker to the senior most position.

TVET graduates who are competent with certain skills may be able to secure employment without great difficulty. Such skills are well-known as soft skills. Hence, beginning from 2009, all proposed new programmes including professional programmes are required to fulfill the "Soft skills" elements including all aspects of soft skills that include the cognitive elements associated with non-academic skills. The government identified soft skills as the most critical skills in the current global job market especially in a fast moved era of technology (Ahmad,1998). The reorientation of education which is one trust of education for sustainability also relates the importance of these so-called soft skills. The seven soft skills learning outcomes are Communication skills, Critical thinking and problem solving, Lifelong learning and information management, Group working skills, Entrepreneurship skills), Ethics and professionalism, and Leadership skills.

2. Challenges on the incorporation of Soft Skills

Praxis as perspective and also the process of putting theoretical soft skills knowledge into practice is described a goal-directed action process that based on theory to solve challenges on how best to incorporate soft skills to achieve the desired outcomes. It has been increasingly important to assist graduates to function effectively in today's era of globalisation and the challenging world of work. Hence, according to Ahmad (1998), creating challenges to the government, providers and society at large, such as the following;

a) Challenges from the Government's Perspective

- Holistic human capital that encompasses knowledge, skills and a positive attitude.
- Highly skilled workforce to support k-Economy.
- Career paths and employability for youths.
- The need to compile comprehensive information on the national workforce market.
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b) Challenges from the TVET Providers' Perspective

- The need to combine theory and practical aspects in teaching.

- The ability to create a learning environment that enables flexible and relevant self-study.

c) Challenges from the Society's Perception

- Society's perception of students who join the skills stream as drop-outs and are consequently frowned upon.
- The need to recognise skills training as part of the mainstream education.
- Irresponsible training providers – misuse of government financial assistance through negligence of students.
- The need for smart partnership to improve skills training.

B. OVERVIEW OF TVET SYSTEM IN MALAYSIA

At present there are several ministries and agencies, as well as the private sectors involved in the provision of TVET in Malaysia. To ease the discussion of this paper, we classify it into five main sectors which are briefly outlined below;

1. General Education Sector.

Generally, the general education system is divided into pre-tertiary and tertiary education. There are two governing authorities for the education sector. Pre-tertiary education (i.e. from pre-school to secondary education and teacher education) is under the jurisdiction of the Ministry of Education (MOE) while tertiary or higher education is the responsibility of the Ministry of Higher Education (MOHE). Since March 2004, The Ministry of Higher Education (MOHE) was built to take charge of higher education which involves 20 public universities, 33 private universities and university colleges, 4 foreign university branch campuses, 22 polytechnics, 37 community colleges and about 500 private colleges.

The Malaysian Qualifications Agency (MQA) under the jurisdiction of MOHE, an agency that supervises and monitor the quality of public universities, polytechnics and community colleges. MQA integrates the quality assurance system for public higher learning institutions (i.e. Quality Assurance Agency under the Ministry of Higher Education) and private higher educational institutions (i.e. LAN) in Malaysia as well as training / skill-based providers.

The legal regulatory frameworks that support the provision of education in Malaysia are, Education Act, 1996, Private Higher Education Institutions Act, 1996, National Council on Higher Education Institution Act, 1996, and the Malaysian Qualifications Agency Act 2007, Universities and University Colleges (Amendment) Act, 1996, National Higher Education Fund Corporation Act, 1997, MARA Institute of Technology (Amendment) Act 2000; and the National Higher Education Fund Corporation (Amendment) Act, 2000. The Education Act, 1996 covers pre-tertiary levels of education under the national education system which comprises pre-school, primary, and secondary education as well as post-secondary education. The other six acts regulate the provision of higher education in Malaysia.

2. Public and Private Training Sector

The public and private training system which caters mainly school leavers who do not take up pre-university and university studies. It excludes universities and university colleges but includes polytechnics and community colleges under the Ministry of Higher Education, vocational skills track streams in vocational schools under the Ministry of Education as well as training institutions under the Ministry of Human Resources, MARA Skills Institutes, and Youth Skills Colleges under the Ministry of Youth & Sports, and also agriculture institutes under the Ministry of Agriculture and Agro-based Industries.

3. The certification and qualification framework sector

Malaysian Skills Qualifications Framework is a five-tiered skills certification system based on the NOSS which was introduced by the National Vocational Training Council in 1993. National Skills Development Act 2006 forms the legislative basis of the National Dual Training System (NDTS) which mandated NOSS-based training system for the training system in country. The **National Occupational Skills Standards (NOSS)** reflect the actual requirements at the workplace, dynamic and incorporate the work processes. Its targeted outcome of training in the field of TVET, possesses soft skills and specific functional skills and "competencies" developed through DACUM processes.

4. The company-based training sector

Company-based training which comes under the Human Resource Development Fund established in 1993 aimed to promote relation with private higher education is largely under the purview of the Private Higher Education Institutions Act 1996, and accredited by the National Accreditation Board.

5. The life long learning and professional development sector

This sectors which consist of continuing education and training caters to the demands of employers, community or society at large for further education, skills upgrading, retraining, career advancement and enrichment. For the public services sector, commencing 2009, workers are too fulfilled at least seven days or equivalent of attending professional staff development programmed each year.

C. PRAXIS OF INCULCATING SOFT SKILLS AT UTHM LEVEL

With regard to the challenges, the objective of the higher education system is to produce professionals as demanded by the nation for human resources. Universiti Tun Hussein Onn Malaysia (UTHM) is one the 20 public universities governed by the Ministry of Higher Education (MOHE). The MOHE has incorporated this vision as one of its primary objectives under its Strategic Plan, in line with the national agenda to make Malaysia as a preferred centre to pursue higher education.

Hence all higher education programmes, including technical teachers' education programmes at the Faculty of Technical Education UTHM are evaluated and accredited by the quality assurance policy set by the Malaysia Qualification Agency (MQA) as directed by the Ministry of Higher Education (MOHE). At the same time, our programmes are also governed by Teachers Education Division Ministry of Education and Public Services Department (PSD). The programmes can be listed in the Malaysian Qualification Register (MQR); *Sistem Pengiktirafan Kelayakan (http://www.interactive.jpa.gov.my/webinteraktif/frmMainIktiraf.asp),* that can be assessed online only after it has been accredited by the MQA and recognized by PSD. The MQR is also the reference point for credit transfer between programmes and qualifications that are accredited.

1. Stepping Down From Philosophy To Implementation

The educational philosophy of UTHM stated *that "education and training in this university is a continuous effort to lead in the market oriented academic programmes. The programmes are student-focused and are conducted through experiential learning in order to produce well trained human resource and professionals who are catalysts for a sustainable development."*

This philosophy is supported with a mission statement which states "To produce and train competitive professionals and technologists of high ethical values in the global arena through holistic academic programmes, knowledge and research culture, based on the concept of Tauhid." This mission statement communicates the UTHM reason for being, and how it aims to serve its key stakeholders. This mission statement also includes a summation of the educational values as the beliefs of our university collectively, in which we are emotionally invested. These collective values were implemented throughout the system as indicated in Figure 1; Stepping Down of Mission to Programmes Objectives, as below;

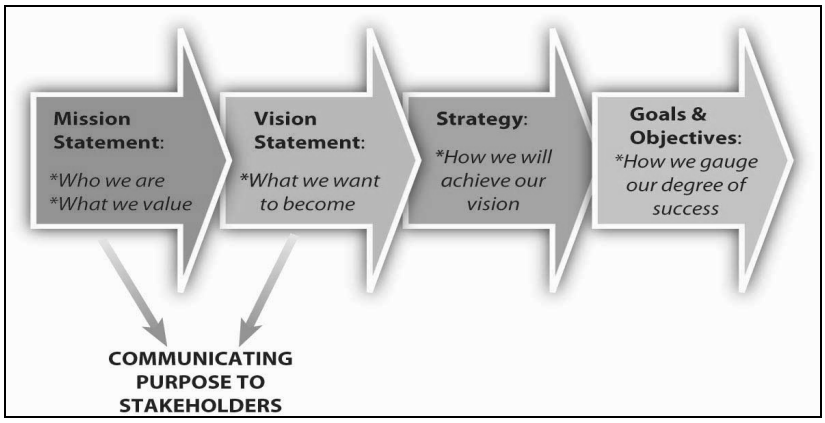

Figure 1: Stepping Down of Mission to Programmes Objectives

In line with UTHM's vision and mission, UTHM has committed to produce technical graduates who are not only competent, creative and versatile professionals who are also guided by high moral and ethical values in the service of God and mankind, but they are also possessed with soft skills that will encounter or prepare them with employment markets and job seekers. Hence, in order to accept such challenges

and competitions, UTHM needs to produce technical graduates who have a sound self disciplinary and professional knowledge, high self esteem and effective skills in communication, team working, problem solving and lifelong learning.

In accordance to the graduates skills attributes as outlined by the MoHE, UTHM has identified a range of attributes and soft skills which will enable our graduates to function effectively in a wide range of social and professional contexts. The development of such attributes will be embedded within the contexts of the students' discipline or professional field. In general, the communication skills, team working, problem solving, adaptability, lifelong learning, self esteem and ethics and integrity are amongst the attributes that need to be focused.

2. MQF Curriculum Structure

The main key feature of MQF curriculum structure is based on measurable learning outcomes. We belief that among the key features which may be used to judge if any system has implemented an outcomes-based education systems are:

1. Creation of a curriculum framework that outlines specific, measurable outcomes. The standards included in the frameworks are usually chosen through the area's normal political process.
2. A commitment not only to provide an opportunity of education, but to require learning outcomes for advancement. Promotion to the next grade, a diploma, or other reward is granted upon achievement of the standards, while extra classes, repeating the year or other consequences entail upon those who do not meet the standards.
3. Standards-based assessments that determines whether students have achieved the stated standard. Assessments may take *any* form, so long as the assessments actually measure whether the student knows the required information or can perform the required task.
4. A commitment that all students of all groups will ultimately reach the same minimum standards. Training providers may not "give up" on unsuccessful students.

At the faculty level, we trained would be teachers to be sound facilitator and practice student-centred coach, with the primary responsibility to develop in the students a positive attitude to learning. He or she is the role model in the classroom and is instrumental in creating a positive and supportive learning environment within the class. The teacher must constantly be aware of the Program Educational Objectives or Outcomes (PEO), Programme Learning Outcomes (PLO) and Subject Learning Outcomes (SLO) are being met. Hence, all instruction and evaluation must reflect these objectives according to the prescription of the MQA.

3. Program Educational Objectives and Outcomes

In general, our Program Educational Objectives were initially established through;

1. Review of the university's vision and mission statement,
2. Evaluation of the desirable characteristics of our graduates,
3. Drafting or revising the list of objectives, and review by the school board members.
4. Survey to the industry and constituent groups to seek their views and comments regarding our PEOs. Constituent groups include our current students, alumni, and employers of our students and the parents.

Program Outcomes focus on those abilities that are measurable at the successful end of a student's academic program in Technical Education at the Universiti Tun Hussein Onn Malaysia. Performance Skills and Abilities are emphasized throughout the 4-year undergraduate program in order to prepare students to be successful engineers and to meet the School's Program Outcomes.

The philosophy and development of quality curriculum forms the basis of our technical teacher education programme. However, at the same time we realize that it is not an easy task to elaborate on our philosophy, unless through the use of framework that reflects on how the philosophy is put into practice could be demonstrated. Illustrated well in the Philosophy of Education for the Faculty of Technical Education UTHM, a programmed must reflect that it is learning that matters and we believe that experiential learning has more to offer than the conventional approach of lecture and tutorial. The overall process of curriculum development was nonetheless in place with the supporting mechanism of ISO 9001:2010 and complies with MQA standard criteria.

4. Process of Curriculum Development

In general, the development of soft skills using the embedded model requires the expertise of the lecturers to utilize the various teaching strategies and methods that are entirely student-cantered. It also involves active teaching and learning and students should participate actively in the activities. Some of the appropriate strategies and methods that are practical include (I) learning by questioning, (ii) cooperative learning, (iii) problem-based learning (PBL), (IV) e-learning.

Despite the freedom of choosing which methodologies to adopt, UTHM applies this framework in the curriculum development of its technical teachers undergraduate and post graduates programmes in the faculty. Our experience tells that a programme in needs to have at least these criteria to be well accepted by the customers and stakeholders and in compliance with the MQF;

1. Analysis of training and stakeholders' requirement.
2. Alignment of Vision, Mission and Outcomes
3. Flexible and focus.
4. Dynamic and integrative curriculum
5. Learners centered
6. Assessment for learning
7. Continual improvement
8. Compliance to a standard

The curriculum development as practice in UTHM involves the round table discussion with the industrial key players and curriculum experts from different sectors in the area. Pertinent to this concept of the curriculum development, the rubric of monitoring and assessment development will be based on the identified occupational need of particular occupational field (Finch and Crunkilton, 1999). The specific competencies and requirements from particular jobs accumulated in the forms of criteria. Figure 2 Operational development framework as indicated below provides rough idea of the process of curriculum development at programme level.

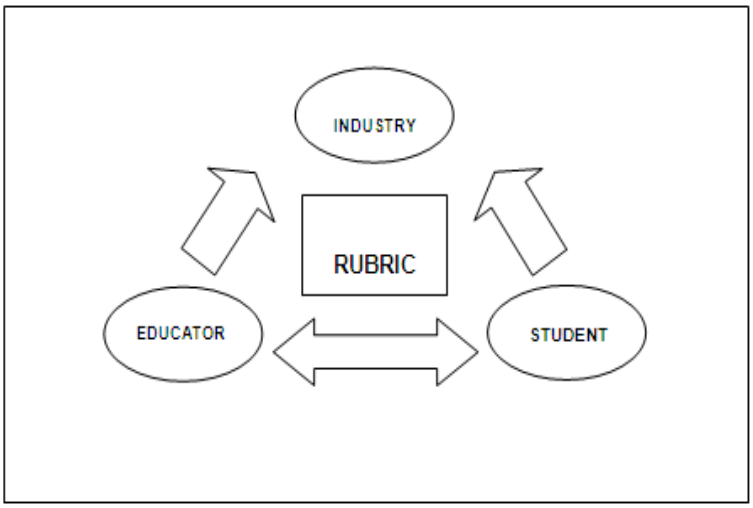

Figure 2: Operational development framework

(*Adapted from: Finch and Crunkilton, 1999; Huba and Freed, 2000; Savin-Baden, 2004)*

5 Concept of Effective Course Design

Effective course design depends on effective planning and design. Many problems that can occur once a course is in motion can be prevented by advance preparation and planning for students' learning. Figure 3 Effective Course Design, as below describe the relationship between the instruction, assessment and the course learning outcomes in the process of developing the programme curriculum.

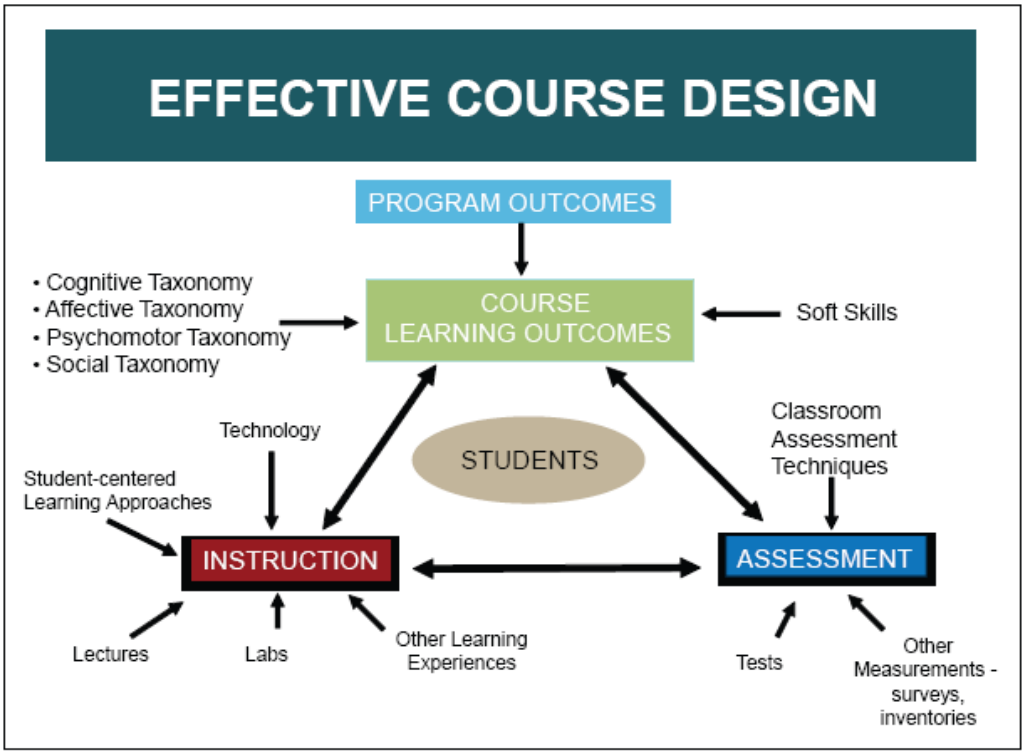

Figure 3: Effective Course Design

6. Design of Technical Teachers Programme

At the university level, the Malaysia Qualification Framework (MQF) requirements were explained to trainers at faculty and departmental unit levels before they are persuaded to implement the framework, which gradually increases in its popularity. We picture out the Curriculum Development Framework stepping down process that characterizes the cyclical process of design, deliver and assess, to make the MQF easier to follow, as indicated in Figure 4 Conceptual Framework of Curriculum Development, below;

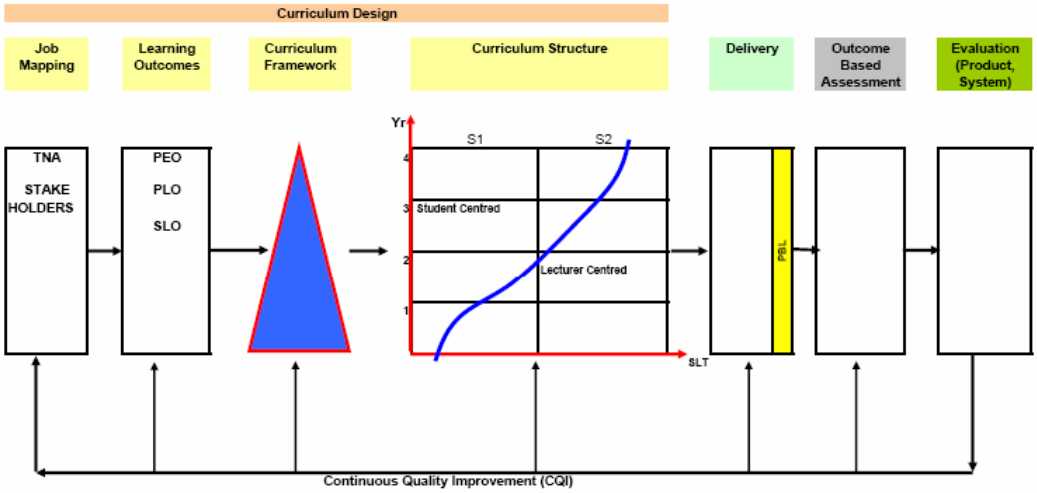

Figure 4: Conceptual Framework of Curriculum Development

Source: Jailani Md Yunos, W.Mohd. Rashid W. Ahmad, Noraini Kaprawi, Wahid Razzaly (2006). Master in TVET: Malaysian Experience. "Innovation and Internationalisation in the Qualification of Technical and Vocational Education and Training (TVET) Experts": 22-26 November 2006, Colombo, Sri Lanka.

As the example shown in **Figure 4 Conceptual Framework of Curriculum Development**, as, the Programme Education Outcome, Programme Learning Outcome and Subject Learning Outcome of the programme are well connected to achieve the outcome. The main component of the programme is as follows.

- Outcome based Program
- Curriculum and Course Subjects Structure
- Matrix Learning Outcome
- Synopsis

D. LEARNING OUTCOMES: GRADUATE STUDENTS ATTRIBUTES (GSA)

In the National Higher Education Strategic Plan, MOHE had drawn strategic objectives for Teaching and Learning to ensure that the additional attributes acquired by the students were according to GSA. In fact, the soft skills or GSA is so important that the Minister of Higher Education had specifically addressed and continued to place it as a focused agenda in his 2010 Early Year Mandates to the Ministry.

Graduate Students Attributes (GSA) comprises of qualities, skills, and abilities that are valued in study, social situations and employment. The GSA first defined by the National Higher Education Research Institute (2003) of the MOHE before being adapted by UTHM are the Seven Attributes of UTHM Graduates, as the following:

i. COMMUNICATION SKILLS

Communication skills incorporate the ability to communicate effectively in Bahasa Melayu and English across a range of contexts and audiences.

- CS1 Ability to present ideas clearly, effectively and confidently through written and oral modes.
- CS2 Ability to listen actively and respond accordingly.

- CS3 Ability to make clear and confident presentation appropriate to audience.
- CS4 Ability to use technology in presentation.
- CS5 Ability to negotiate and reach agreement.
- CS6 Ability to communicate with people of different culture.

ii. CRITICAL THINKING AND PROBLEM SOLVING SKILLS

Critical thinking and problem solving incorporate the ability to think critically, logically, creatively and analytically.

- CTPS1 Ability to define and analyze problems in complex, overlapping, ill-defined domains and make well-supported judgment.
- CTPS2 Ability to apply and improve on thinking skills, especially skills in reasoning, analyzing and evaluating.
- CTPS3 Ability to look for alternative ideas and solutions.
- CTPS4 Ability to 'think outside the box'.
- CTPS5 Ability to understand and adapt to the culture of a new community and working environment.

iii. TEAMWORKING SKILS

Team working incorporates the ability to work with other people with different background to achieve a common goal.

- TW1 Ability to establish good rapport, interact with others and work effectively with them to meet common objectives.
- TW2 Ability to comprehend and assume the interchangeable role of leaders and followers.
- TW3 Ability to recognize and respect the attitudes, actions and beliefs of others.

iv. INFORMATION MANAGEMENT AND LIFELONG LEARNING SKILLS

Information management and lifelong learning incorporate the ability to continue learning independently in the acquisition of new knowledge and skills.

- LL1 Ability to seek and manage relevant information from a variety of sources.
- LL2 Ability to accept new ideas and to learn independently in the acquisition of new knowledge and skills.
- LL3 Ability to develop an inquisitive mind driven by a passion for knowledge acquisition.

v. ENTREPRENEURSHIP SKILLS

Entrepreneurship incorporates the ability to analyze situations and recognize opportunities to use one's knowledge and skills for business opportunities.

- ES1 Ability to identify business opportunities.

vi. LEADERSHIP SKILLS AND PROACTIVENESS

Leadership and proactiveness incorporate knowledge of the basic principles of leadership and application of the traits of leadership in one's interaction with others.

- LS1 Ability to demonstrate basic knowledge of leadership.
- LS2 Ability to take action and to get others engaged

vii. ETHICS AND INTEGRITY

Ethics incorporates the ability to apply high ethical standards in professional practice and social interactions.

- ET1 Ability to act ethically and with a high sense of social responsibility.
- ET2 Ability to analyze and make ethical decisions when solving problems.
- ET3 Ability to understand the economic, environmental and socio-cultural impacts of professional practice.

The first two elements have always been a focus in any curriculum and students' achievement in these areas can easily be assessed by means of tests, lab reports and assignments. However, the other seven requirements are a "major concern" because the teaching of these skills is integrated into the curriculum without particular emphasis, and it can be difficult to determine whether they are acquired or developed.

E. MODEL FOR IMPLEMENTING SOFT SKILLS IN HIGHER EDUCATION

Salih (2007) proposed that the Malaysian approach of infusing soft skills a holistic approach. A holistic approach is used to plan and implement the soft skills among students of higher education. This approach is based on the combination of several programs and main activities; formal teaching and learning activities (include all curricular and co-curricular elements); support programs (academic and non-academic focused) and the students' campus life (students' residences and the campus surroundings). Hence technical teachers' preparation programmes at the Faculty of Technical Education UTHM adopt an integrated five-pronged approach (refer Figure 5) to developing soft skills of among the teachers via:

1. the teaching-learning process through the embedded model
2. the teaching-learning process through the stand-alone model
3. the English Language Support Programme (ESLP)
4. the UTHM Degree ++ programme
5. the students' campus life

Figure 5 shows the framework for implementing soft skills among students of higher institutions in Malaysia (Ministry of Higher Education Malaysia, 2005). In general, the development of soft skills among the students via the formal teaching and learning activities takes two models: (i) stand alone and (ii) embedded.

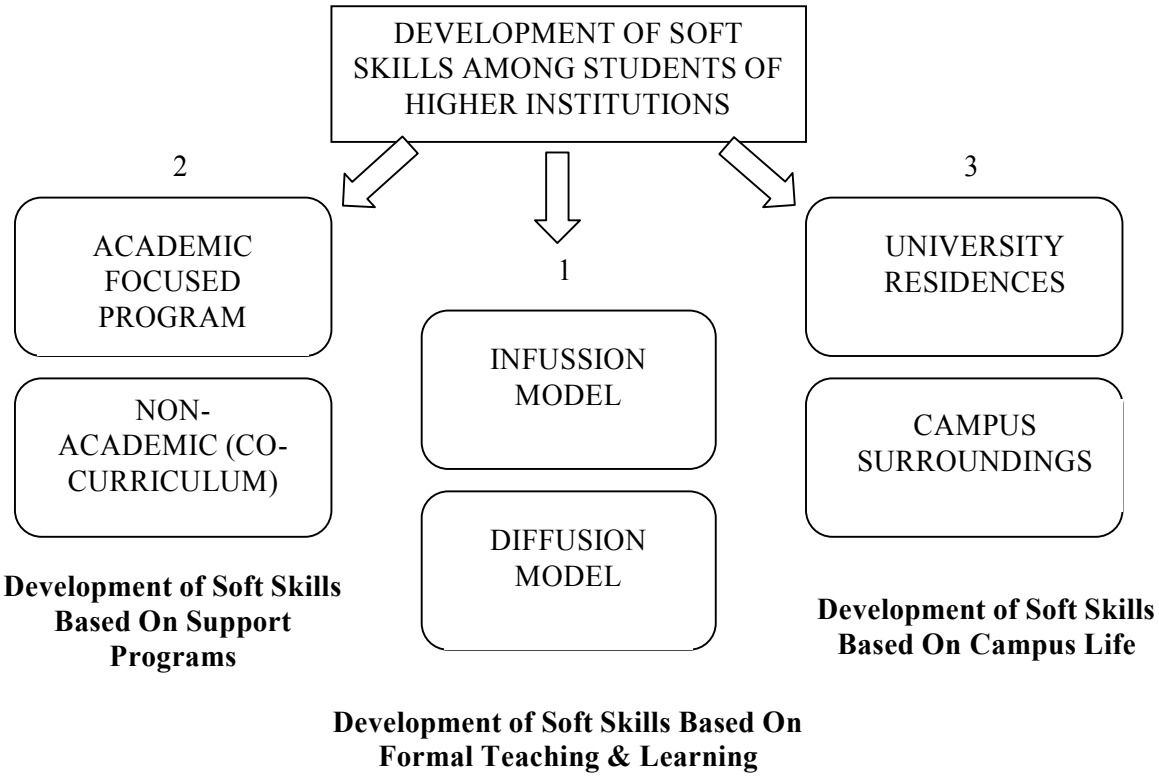

Figure 5: Framework for Implementing Soft Skills

From our opinion, soft skills could be developed in the teaching learning process through two models –the embedded or infusion model and the standalone or diffusion model. In the embedded or infusion model, soft skills are integrated into the content subject and these skills become an integral part of the teaching-learning objectives. This approach is also known the "curriculum integrated approach" (Bennett, Dunne and Carre, 2000) since the development of soft skills is integrated into the curriculum.

1. Infusion or Embedded Model

In the embedded or infusion model, soft skills are integrated into the content subject and these skills become an integral part of the teaching-learning objectives. This approach is also known the "curriculum integrated approach" (Bennett, Dunne and Carre, 2000) since the development of soft skills is integrated into the curriculum. The curriculum-integrated approach would enable students to develop soft skills within the context of their discipline.

In this model, the concepts of soft skills are injected into the various conventional disciplines and subjects without introducing new subjects such as in the example of thinking education in Figure 6.

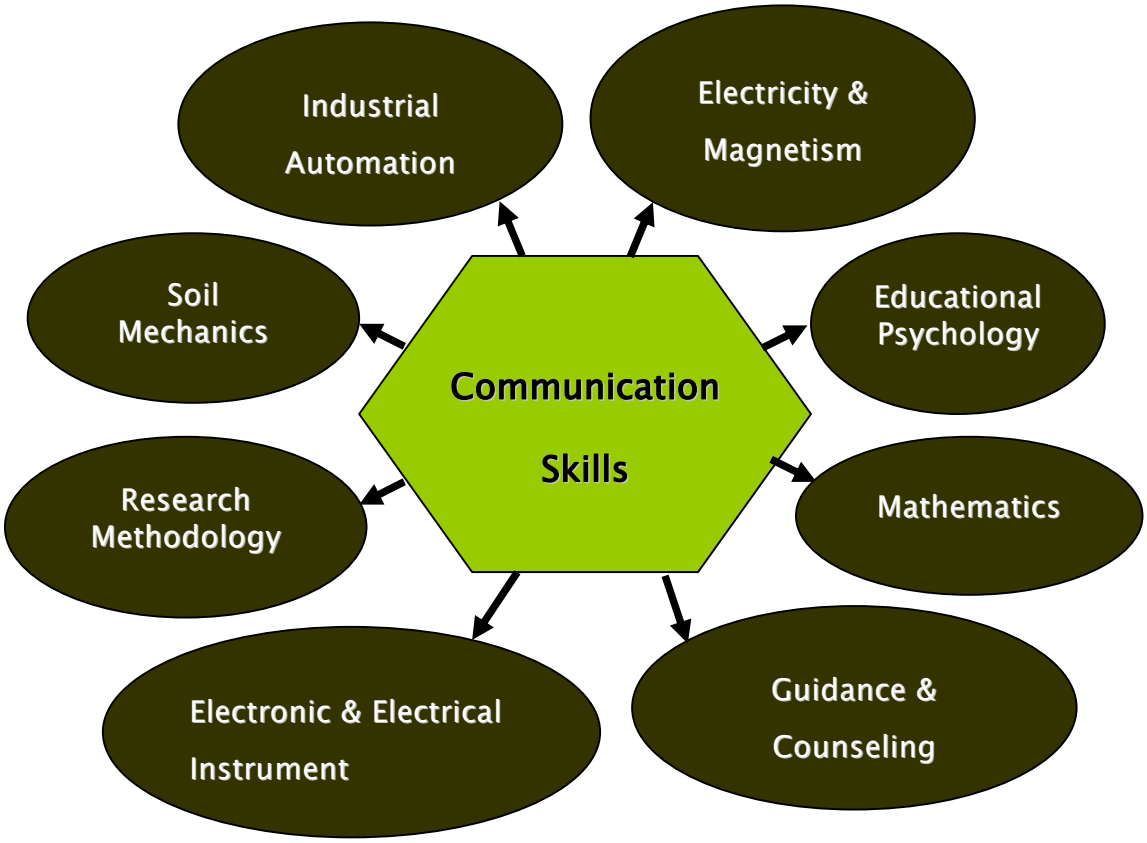

Figure 6: Infusion Model in Curriculum on Thinking Skills

The main issues with this approach are that soft skills cut across the range of subjects and are to be integrated into all of the subjects. Integration of soft skills in the subject area is generally difficult to design and implement. It means therefore that teachers of different subject areas and from different levels must be in regular dialogue with each other to validate and confirm whether or not the soft skills are still attuned with the times and disciplines.

However, in the opinion of the author the best way to integrate generic skills in the TVET curriculum is by combining the both the model through Hybrid approaches. We need to offer both the separate discipline on generic skills as well as the integration of the same in different subject contents depending on the requirement of the TVET curriculum.

2. Diffusion Model or Stand Alone Development Model

The diffusion model is also known as "stand-alone development model" (Bennett, Dunne and Carre, 2000) since soft skills are developed independently of the content subjects (see Figure 7). The underlying literacy assumption in this model is that using soft skills for purposes outside the classroom enhances motivation and learning. The underlying theoretical assumption is that change is promoted through ideas or information introduced by people with whom we can identify. This model uses the approach of training and providing opportunities for students to develop soft skills through specific courses that are carefully planned for this purpose. Usually, these subjects are offered as university courses (such as English language, Islamic civilization, entrepreneurship, etc) and elective courses (such as public speaking, critical thinking, etc). The courses in this category are often a part of the overall requirements that make up the program. The number of courses and credits in this category depends on the curriculum design and the requirements of the program. The stand alone subject model can also be initiated by encouraging students to sign-up several additional courses which can be accumulated to be a minor course which is different from the initial program signed-up. For example, a student who is pursuing a Bachelor in Technical Education program is encouraged to elective courses in Industrial Workshop Skills Programmes or Entrepreneurships. However, such an approach will require an increase in the number of credits and time spent for the particular program.

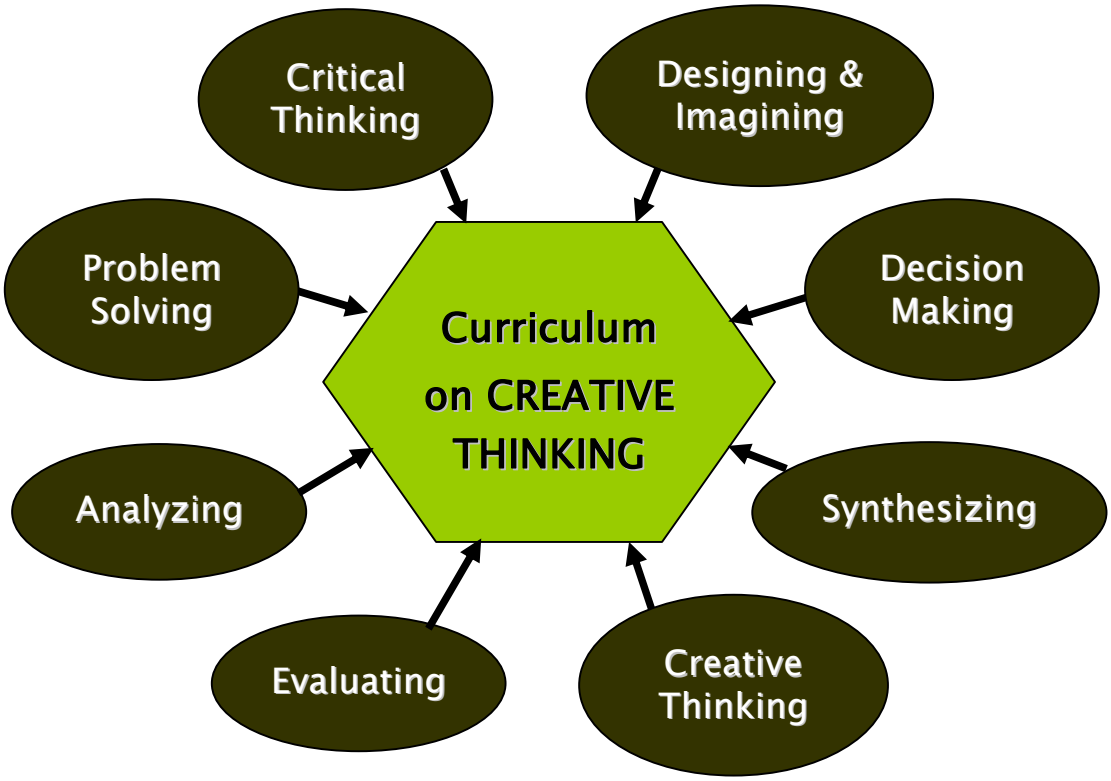

Figure 7: Diffusion Model in Curriculum on Thinking Skills

3 Pedagogical Challenges for Learning System

Shift in Pedagogical Dimensions, as indicated in Table1 suggest that there should be a paradigm shift in educational practice of teaching and learning in knowledge society. The author argues that where learning through facts, drill and practices, rules and procedures was more adaptive in earlier days, now learning through projects and problems, inquiry and design, discovery and invention, creativity and diversity, action and reflection is more fitting for the present times. This necessitates the development of a conceptual framework on the pedagogical shift in the dimensions of teaching and learning system in the knowledge society. The suggested shift required in each of the pedagogical dimensions is contained in the table below as an effective approach to build up 21st century skills and competencies embracing systemic process and content-rich teaching and learning methodologies.

Table 1 : Shift in Pedagogical Dimensions

Dimensions	Undesirable	Desirable
Pedagogical Base	Instructive	Constructive
Learning Focus	Content	Learning to Learn
Learning Strategies	Interactive	Collaborative & Interactive
Learning Goal	External Controlled	Autonomous
Learning Theory	Behavioural	Cognitive
Teacher Role	Didactic	Facilitative
Delivery Modes	Fixed	Open
Learning Approaches	Surface	Deep
Learning Structures	Rigid	Flexible/ Modular
Instructional Models	Instructor Centered	Learning Team Centered
Learning Objectives	Information Transfer	Mental Model Change
Learning Methods	Passive	Active

4 Development of soft skills through support programs

This involves programs and activities that are created, developed and used to support soft skills either directly or indirectly. In general, the program and activity can be divided into two: (i) academic support program and (ii) non-academic support program. The academic support program is to help students acquire the soft skills that are associated with academic matters. Some of these programs include 'Learning Skills' and 'English Language Support Program (ELSP). As for the non-academic support program, it assists students to acquire the soft skills that are not related to academic matters but more of personality and professional development of the students. Most of the programs and activities are in the form of co-curriculum and extra co-curriculum.

5 The development of soft skills through Campus Life Activities.

Most of the university students spend half of their students' life living in residences in the university campus. As such, institutions of higher learning should use this golden opportunity to develop their soft skills. This can be done through carefully crafted programs and carrying them out in the conducive campus grounds.

F. OUTCOME BASE EDUCATION APPROACH

Indeed attempts to incorporate soft skills among students are actually neither new nor rare. Many TVET staff has consciously or subconsciously applied or incorporated soft skills in their teaching and learning approaches. Even at the primary and secondary school levels, these skills are integrated into the teaching-learning materials and classroom activities (Ashton, 1994). Therefore, it is important that planned efforts should be made to ensure that the application of soft skills among undergraduate students in the higher learning institutions can be continued.

In 2006, UTHM has made a decision to adopt the Outcome-Based Education (OBE) approach in the curriculum design and teaching in the classroom. OBE has been the accepted approach in Technical Education, and its effectiveness in ensuring the success of outcomes of the academic programme is viewed as a solution to other programmes. Thus, UTHM became among the first Malaysian university to adopt OBE for all academic programmes. This is in line with MOHE's introduction of the Learning Outcome and Soft Skills mapping into the documentation of new and review of university academic programmes in 2006. It promotes extensive engagement of soft skills in academic curriculum in all universities.

In UTHM OBE is simply referred to as learning outcomes (LO) Kemahiran Insaniah, which is the foundation of OBE. The soft skills (Kemahiran Insaniah – KI) are embedded in the curriculum as warranted by the Ministry of Higher Education (MOHE) and as part of our continuous efforts to ensure successful graduates who can adapt to any economic situations and seek for by employers. The MOHE's learning outcomes is the base of our programme's outcome (PO). To ensure that the PO is achieved, each course that makes up the programme must contribute to the achievement of the PO. It was the decision of the curriculum planners that specified learning outcomes of each course (course LO) comprise of three specific domains; cognitive, psychomotor and affective. On top of that, between one to three KIs must be embedded in each course.

To ensure that the specific course LOs and the POs are achieved, appropriate teaching approach must be used in the conduct of classes. Gone were the days of lecturers manipulating the whole lecture time, standing at the rostrum, and delivering what seems to be a structured content of the topic. Universities world-wide are moving towards student-centered learning (SCL), where the learning sessions are planned to allow students to be active players in the classroom towards a more meaningful learning.

To ensure that the course designed is able to produce the desired outputs, there must be congruency between the design, implementation and assessment. The assessment is the tool to gain feedback on the LOs that are achieved, and that the students have gained competencies in the specified KIs. The following diagram illustrates the contributing elements in an effective course design.

In April 2007, a workshop for all academic staff was organized for incorporating soft skills in the teaching and learning of teachers training course subjects at the faculty level. In this workshop, the above mentioned attributes were addressed, conveyed, shared and discussed with the academic staff whereby the process of incorporation of such skills must follow through three main stages, namely, the planning stage, implementation stage and assessment stage of soft skills.

1. OUTCOME-BASED EDUCATION IN TECHNICAL TECHER EDUCATION

Since 2007, Outcome-based Education (OBE) is the essential requirement for our higher education system when Malaysia became a fully signatory member of a multinational agreement for the mutual recognition of technical degrees, i.e. The Washington Accord (WA). This is an endorsement that our education system must demonstrate the strong, long-term commitment to quality assurance in producing professionals ready for industry practice in the international scene. OBE involves students in a complete course of learning, developing their skills in designing to completing a whole process (Spady, 1994a, 1995). OBE also identifies higher levels of thinking (e.g. creativity, ability to analyze and synthesize information, ability to plan and organize tasks). Such skills are emphasized especially when students are assigned to organize and work as a community or entrepreneurial service teams to propose solutions to problems and market their solutions.

1.1 Graduate Skills Attributes (GSA)

Graduate Skills Attributes (GSA) assessment is very important to UTHM. It is not merely conducted to accommodate to MOHE's directives or to fulfill the requirements of the Academic Performance Audit (APA), but more so, it provides a significant reality check on our core business, that is teaching and learning. The curriculum was designed to achieve specific goals which include preparing students for "rest of their life" and the GSA assessments will provide the feedback on what is lacking, what still needs to be improved on, and what effective intervention can be planned by the course instructor, advisors and faculties to enhance students' GSA.

1.2 The Program Delivery

The Teachers Education Programme of the Bachelor in Vocational Education (Instructional and Technology Design) at the faculty requires an official recognition by the MQA, PSD and the TED Ministry of Education, are to be review every four years (refer to Table 2)

Table 2 : Different Levels of OBE

Teachers Perspective	Students Perspective	Scope
Program Educational Objectives [PEO]	Student Learning Outcomes (SLO)	Few years after graduation
Sub-Programme	Programme Outcomes	Upon graduation

Objectives [SPO]	[PO]	
Course Or Subject Objectives [CO]	Course Or Subject Learning Outcomes [CLO]	Upon subject completion
Weekly Or Topic Objectives	Weekly Or Topic Outcomes	Upon weekly / topic completion

1.3 Teaching And Learning Process In OBE

As had been presented in the International Colloquium on Private Education (2008), the MQA Code of Practice or Good Practices, the quality assurance process in teaching and learning delivery is built on the following attributes:

1. encourages a variety of teaching and learning methods
2. ensures the choice of credible student assessment methods appropriate for the teaching and learning methods chosen;
3. ensures there are adequate resources to deliver the curriculum;
4. concerned with good outcomes rather than detailed specifications of content.

Pollock and Ford (2009) stated that the instrument that develops and classifies qualifications based on a set of criteria that are approved nationally and benchmarked against international best practices, and also clarifies the earned academic levels, learning outcomes of study areas and credit system based on student academic load (Student Learning Time, SLT). Therefore, to ensure that faculty members appreciate and deliver the requirement of the OBE system, the faculty developed a Standard Operating Procedure (SOP). It has been established as depicted in Table 3.

Table 3 : Standard Operation Procedure (SOP)

DOCUMENT	RESPONSIBILITY
1. Course Outline	Course Manager
2. OBE Course Outcomes	Course Manager /Program Chairman
3. Teaching Plan	Teaching Staff
4. List of Weekly Teaching Topics with Outcomes	
5. Teaching and Evaluation method	
6. List of Experiment/Field Work/Design/Etc.	
7. Assessment method [Rubrics or Others]	
8. Soft Skill Development- Informal/Formal Cooperative Learning or Problem-based	
9. List of Students	Teaching Staff
10. Course Lecture notes	Teaching Staff
11. Course Work Documentation	Teaching Staff
12. Assignments with solutions [Lab Reports, Term Papers etc.]	
13. Quiz and Test with solutions	
14. Course work marks	
15. Individual/group evaluation method [Rubrics or Others]	
16. Other Evidence [Digital Photos, VCD, etc.]	

17. Examination Question [after completion of semester]	Teaching Staff/Course Manager
18. Question with Answer Scheme	
19. Student's Attendance	Teaching Staff
20. List of student passing coursework	
21. Warning letters	
22. Other Document	
23. Analysis of Examination	Teaching Staff/Course Manager
24. Examination performance statistics for each questions	
25. Comments on performance	
26. Suggestions from Exam Board	
27. Post Mortem of Course	

1.5 Program Outcomes Matrix : Integrating Soft Skills

The program outcome assessment matrix provides a concise summary of how the program outcomes are assessed and the courses to be concentrated when attempting to raise the attainment level of a particular outcome. Programme Educational Outcomes (PEO) and Programme Objectives (PO) are the guidelines designed by Faculty of Technical Education UTHM in order to fulfil the attributes students need to achieve upon graduation. (Refer Table 4) It acts as a vision- a guiding principle and mission which directly align with vision statement in determining how the vision is to be fulfilled. The vision becomes the guiding light for the member of one organization to understand what the organization all about, and to what ultimate principle they shall hold unto and working toward. Example of program outcomes matrix **for** integrating Soft Skills are shown in **APPENDIX 1: Example Of Soft Skills Matrix.**

A vision or mission unifies efforts and build alignment and loyalty among employees. Vision is a desired future and helps to guide people and thus develop a shared image of future. Therefore, we can see that PEO and PO play an important role in shaping our graduates' future. It also motivates and inspires our students to have a higher goal to achieve in the future.

Table 4 : PLO versus PEO

	PEO 1	**PEO 2**	**PEO 3**	**PEO 4**	**Skill**
PLO 1	x				**TS**
PLO 2	x				**TS,IM**
PLO 3	x	x			**TS**
PLO 4		x		x	**CT,PS**
PLO 5			x		**EM**
PLO 6			x	x	**CS**
PLO 7		x	x		**TW,LS**
PLO 8				x	**LLL, Ent**

1.6 Program Outcomes Of The Faculty Of Technical Education

PLO 1	Graduates have the proficiency in and the ability to apply the principles of technical knowledge, Mathematics and science in the analysis of TVET and related fields.
PLO 2	Graduates have the ability to acquire in-depth technical competence in TVET and related fields.
PLO 3	Graduates have the ability to identify and solve problems in TVET and related fields.
PLO 4	Graduates have ability to design teaching and learning systems, components or processes to meet the needs and demands of the TVET profession and related fields.
PLO 5	Graduates have the ability to function effectively both as individuals and in a group in the capacity of a leader or a team member in TVET and related fields.
PLO 6	Graduates have the ability to consider social, economic, technological, and environmental aspects to solve TVET and related fields problems professionally and ethically.
PLO 7	Graduates have the ability to communicate effectively in conveying and disseminating knowledge in TVET and related fields.
PLO 8	Graduates have the ability to use the techniques, skills and appropriate technical methods and tools necessary for sustainable development in TVET and related fields.
PLO 9	Graduates will demonstrate an awareness of the need to stay abreast with the latest knowledge and understand contemporary issues in TVET and related fields.
PLO 10	Graduates have the potential to continue the professional development and advancement through life-long learning in TVET and related fields.
PLO 11	Graduate possesses sufficient management skills to stay competitive in the global market in TVET and related fields.

Vast research and expert opinions have been sought in the effort to determine the specific soft skills to be implemented and used in higher institutions of learning. Based on the research findings obtained, eight soft skills have been identified and chosen to be implemented in all institutions of higher learning here. They are:

- Knowledge
- Practical Skills
- Social Skills and Responsibility
- Ethics and Professionalism
- Critical Thinking and Problem Solving
- Communication Skills and Team Work
- Information Management and Lifelong Learning
- Entrepreneurship and Management

G. CONCLUSION

The process of transforming concept into practice in the OBE reforms emphasizes setting clear standards for observable, measurable outcomes. After developing the education philosophy, we specify the expected outcomes or program learning outcomes (PLO) for the existing program followed by specifying the contribution of each subject in the curriculum to the overall learning outcomes i.e. the subject learning outcomes (SLO). The staffs are also exposed to innovative delivery techniques to satisfy PBL and

PLO/SLO. At this stage the expected Students Learning Time (SLT) 2 is indicated as part of curriculum delivery plan or teaching plan. The move was further strengthened by the move by a number of workshops and seminars organised by the MQA, Ministry of Higher Education (MoHE) and other Institutions.

With respect to soft skills, we belief our education system must continue to be re-evaluated and improved to create the workforce of the future, with a commitment to merit-based programmes. These will reward excellence and nurture talented graduates who excel in strategic and creative thinking, and entrepreneurial and leadership skills that will drive success in the decades ahead.

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PERSONAL CHARACTERS REQUIRED BY THE WORKPLACES

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Abstract

There is a recognition in most of the nations (may be all) that sustainable development of a nation rests upon the development of education of its people. Education is supposed to prepare children to be well-rounded people, including preparing for work. Considering globalization, a nation should be careful in selecting knowledge to be taught for its respective children so that they are suitable with the characteristics or identities of a respective nation-state, including the knowledge required by the workplaces.

A well-educated workforce is the condition-sine-qua-non for successful workplaces. Current and future workplaces require smart and good people e.g. the ones who posses workplace know-how, smart mind, good heart (character), healthy physics, and consequently good behaviors. At the present time and even in the future, personal characters are paramount concerns for the workplaces. The followings are examples of personal characters required by workplaces: works ethics, self-discipline, honesty, commitment, responsibility, respects for self and others, tolerance, hardworking, interrelationship/sociability, work motivation, courage, diligence, integrity, adaptability, self-control, faster learner, flexibility, and entrepreneurship.

Obviously, some workplaces require all of those personal characters, but others may only need some. Those personal characters (heart set) should be prepared by vocational education and training institutions because we all realize that the heart of education is the education of the heart. However, a lot of vocational education and training institutions still disregard character education. It is the time for vocational education and training institutions to prepare workforces with good characters required by the workplaces, both for wage employment and for small and medium enterprises (SME). At the present time, SME is ill-prepared and therefore, there is an urgent need to introduce new philosophy and practices in educating future workforces. Because the future is still uncertain and the pace of change becomes faster and faster, there is an urgent need to prepare workforces with strong basic and adaptable skills as well as good personal characters.

Keywords: personal character, workplace

A. Introduction

Before focusing my seminar paper more specifically on personal characters required by the workplaces, allow me first to express my thanks to seminar committee for giving me opportunity to share some of my ideas and experience regarding workplace personal characters. Also, allow me to welcome and express my sincere appreciation to Prof. Dr. Tod E. Treat from Illinois University at Urbana Champaign USA, Prof. Dr. Jaelani Md. Yunos from UTHM Malaysia, and Prof. Dr. Awang Alias Abu Bakar who is the Director of SEAMEO Vochtech Brunai Darussalam for sharing some of your ideas with us pertaining to the development of vocational education and training institutions. I certainly hope that this international seminar will more than meet your expectations, and as a result, your trip to State University of Jogjakarta Indonesia will be both successful and enjoyable.

In fulfilling the topic of international seminar given to me, I would like to restrict my paper on the area of employability skills required by the world of works generally and personal characters required by the workplaces specifically. To this end, this paper will describe briefly one important aspect of human capital formation, that is, to create a broad-based, skilled, flexible, technology-literate, and good character of workforce through vocational education and training institutions.

B. Impacts of Globalization on Living Values in Nation-States

Globalization has created hegemony to some (or even most) of nation-states that are not capable to follow international standards imposed by supranational institutions. As a result, there is almost no choice for nation-states to select educational policy but to play by a set of global rules not of its own making (Burbules and Torres, 2000). They further claim that globalization has created hegemony and has threatened the autonomy of national educational systems and the sovereignty of the nation-states as the ultimate ruler in democratic society. Furthermore, if nation-states do not follow the supranational rules on international standards, they will be isolated and limited access to valuable resources for education development. Again, globalization will impose and leave nation-states of limited choices but to follow a set of rules, standards, criteria and principles of educational policy imposed by supranational institutions such as ISO,

IMO, and Regional or International Alliances (Akira Iida, 2004). However, a nation-state should be careful in selecting knowledge particularly living values to be taught for its respective children so that they are suitable with the characteristics or identities of a respective nation-state, including the knowledge required by the workplaces. This is actually not only living values but also all soft sciences, hard sciences and technologies. The nation-states should select them on the basis of their nation-states needs in addition to consider international development that should be electively incorporated into their nation-states.

In essence, particularly educational policy, a nation-state should be selectively to teach knowledge that is suitable to the needs of their own nation-states while at the same time considering international forces and factors that should be selectively chosen the knowledge to be taught to their respective children, particularly in living values. Imported values should be electively incorporated into the characteristics of nation-states values and should still stick on their nation-states identities.

The emergence of globalization has crucial impacts on living values (personal characters) in nation-states in the world, including Indonesia. At one side, due to global transparency of information, it is not easy to avoid the flow of information from one nation-state to another nation-state without time lag, particularly living values. For example, American living values, European living values, and Japan living values are very easily adopted by people in any nation-states in the world through televisions, radio and other communication mechanisms. In addition, there has been growing awareness and need of every nation-state to strengthen living values education in schools, family and community. Living values such as compassion, responsibility, honesty, self-discipline, integrity, respects for self and for others, courtesy, and many other living values are getting stronger support from all nation-states in the world. Growing soft skills development, as part of personal characters development, is getting more supports from any education institutions in all nation-states. Putting too much on hard (technical) skills at the expense of soft skills will strengthen cognitive domain but will weaken the important part of human being, that is the heart set (Slamet H, 2009).

The rise of living values education is caused by different forces and factors, but two of them as follows. First, there is a tendency of moral decline for some of young people in all nation-states. Their living behaviors of some of young people are below moral standards. They live in a beautiful but trouble world. Second, there is a tendency

of lacking care from parents to their children due their father and mother both working. The parents leave the schools to take over their responsibility and even worse ask schools to play roles more than their capacity. Currently, there is a push from all nation-states and are facilitated by UNESCO to strengthen the development of personal characters education. Some programs on living values have been developed by UNESCO and most of the nation-states have developed character education on the basis of their contextual needs.

C. The Importance of Educating for Personal Character

As you may all know that there is recognition in most of the nations (may be all) that sustainable development of a nation rests upon the development of education of its people. Education is supposed to prepare children to be well-rounded people (develop individual as a whole), including preparing for work. In reality, however, less attention is given to personal character education. Personal character education generally and employability skills as well as personal characters in specifically are not taught properly i.e. ill-prepared and ill-implemented in vocational education and training institutions.

The less attention to character education can be observed in reality, in that, society put the highest priority in economic value in their lives. From his research, Lickona (1991) found that *"Money increasingly drives our society and shapes the values and goals of our youth. Making money becomes the justification for breaking rules. Consequently, live escalation tended to greed, dishonesty, violent crime, and self-destructive behaviors"*. It is dangerous for the country. He quoted statement from former US President, Theodore Roosevelt saying that *"To educate a person in mind and not in morals is to educate a menace to society"*. He further quoted from the statement of William Kilpatrick saying that *"The core problem facing our schools is a moral one. All the other problems derive from it. Even academic reform depends on putting character first"*.

Slamet PH (1995) also found that student fighting, violence, and self-destructive behaviors were mainly caused by lack of love, compassion, respect, and tolerance from parents. For parents, money counted everything, while for students, it was not enough, and human tough was actually needed by them. The former Minister of Education and Culture, Republic of Indonesia, Prof. Dr. Fuad Hasan (1996) also warned that, putting too much priority on economic value at the expense of the other values such as

solidarity, religious, love and goodness, peace, tolerance and arts will cause dehumanization, demoralizations, and objectification of human being, and it will deteriorate the real meaning of education. Education is only for the sake of economy and the idea of holistic individual development (well-rounded individual development) of our children has been neglected. Mind set, heart set, physical set, and action set is not taught in balance.

In essence, all the readings agree that educating individual as a whole in order to be well-rounded people is a must and can not be reduced partially into only mind and physical sets. Educating individual as a whole consists of balanced mind, heart, physical, and action sets noting that the heart of education is education of the heart. Hence, personal character as part of the heart education is very important to teach to students in vocational education and training institutions.

D. Dimensions of Personal Characters

There are two classifications of personal characters, general personal characters and specific personal characters. General personal characters should be possessed by all people to be good citizens in their respective countries and in the world. While specific personal characters are the characters that should be possessed by those who work in certain types of workplaces (this workplace personal character will be discussed separately in Section D. The classification is not meant to be rigid because some of the personal characters whether general or specific may be applied in both situations. However, stressing should be made because certain workplaces require personal characters that are not required by citizenship.

A detailed concept of general personal characters was developed by Lickona in 1992. He divides general personal characters into three components: moral knowing, moral feeling and moral action. He then divides moral knowing into different kinds of sub-moral knowing i.e. moral awareness, knowing moral values, perspective-taking, moral reasoning, decision-making and self-knowledge. According to him, all of these sub-moral knowing are considered as qualities of mind that make up moral knowing, and thus represents cognitive side of characters. He further conceptualize that moral feeling include conscience, self-esteem, empathy, loving the good, self-control and humility. These make up what he calls emotional side of our moral selves. He then claim that values education that is merely intellectual, that touches the mind but not the

heart, will miss a crucial part of character. Finally, he divides moral action into three sub-moral action i.e. competence, will and habit. He claims that moral action is the outcome of moral knowing and moral feeling. Thus, moral action requires opportunities to develop habits, plenty of practices and repeated experiences.

The followings are examples of general personal characters (living values) that everybody should possess as good citizens: responsibility, respect for self and for others, compassion, courtesy, tolerance, honesty, self-discipline, freedom, human rights, democracy, prudence, helpfulness, diligence, courage, integrity, cooperation/solidarity (learning to live together), peace, justice, fairness, good will, love, democracy and humility (Ohio Department of Education, 1990; Lickona, 1992; UNESCO, 1999; Drake, 2006; Slamet PH, 2009).

E. Employability Skills Required by the Workplaces

In general, education institutions are supposed to prepare young people to be good citizen, to live full lives and to create broad-based, smart, skilled, flexible, technology-literate, and good character of workforce. Thus, vocational education and training institutions can not escape from this broad objective. This paper concerns only one part of that objective, the part that explains how vocational education and training institutions contribute to the smooth transition of graduates from school to work. Smooth (effective and efficient) school-to-work transition can be achieved by producing a well-educated workforce having relevant employability skills needed by industry and commerce. A well-educated workforce is the condition-sine-qua-non for successful workplaces. Current and future workplaces require well-educated workforce who are smart and good people e.g. the ones who posses workplace know-how, smart mind, good heart (character), healthy physics, and consequently good behaviors. At the present time and even in the future, personal characters are paramount concerns for the workplaces.

Elsewhere has been cited that, a well-educated workforce has to have employability skills which are relevant to the needs of world of work or workplace. For example, SCANS Report (1991) of USA identified the know-how (employability skills) in two parts, competencies and the foundations. The competency part includes how effective workers can productively use resources, interpersonal skills, information,

system and technology. The foundation part contends that competence requires basic skills, thinking skills and personal qualities.

UK (1993) identified core skills related to workplace as follow: (1) communication, (2) personal skills, (3) working with others, (4) application of numbers, problem solving, (7) information technology, and (8) modern foregn language.

In Australia, Department of Employment, Education and Training (1995) key employment-related competencies, that is, competencies essential for effective participation in the emerging patterns of work and work organization as follows: (1) collecting, analyzing and organizing ideas and information;(2) communicating idea s and information, (3) planning and organizing activities, (4) working with others and team, (5) using mathematical ideas and techniques, (6) solving problems, (7) using technology, and (8) cultural understanding.

New Zealand (1995) defined essential skills related to workplace as follows: (1) using information skills, (2) communicating skills, (3) self-management skillsa, (4) work and study skills, (5) social skills, (6) numeric skills, and (7) problem soling and decision making skills.

In 1998, Ministry of Education and Culture, Republic of Indonesia defined the workforce who has employability skills are those who posses broad-based, skilled, flexible and technology-literate. These broad employability skills are then detailed as follow: (1) possessing broad and strong basic skills adaptable to confront the future development of science and technology, (2) collecting, analyzing, and using data and information, (3) communicating ideas and information, (4) planning and organizing activities, (5) working together in team, (6) solving problems, (7) thinking logically and using mathematical techniques, and (8) communicating in global language (English).

We may go on searching more other literatures on employability skills but the readings clearly show that they are more comparable and have been repeated again and again in those countries. Therefore, it is enough to sum up that, the workforce for current and in the future should have employability skills as follow: workplace know-how, smart mind, good heart (personal character), healthy physics, and consequently good behaviors. The reminder of this paper will restrict on personal characters required by the workplaces.

F. Dimensions of Personal Character Required by the Workplaces

Employability skills consist of mainly workplace know-how (smart mind, good heart/personal character, healthy physics, and consequently good behaviors). Personal character required by the workplaces is part of employability skills, called heart set (affective domain).

Based on my personal experience as a consultant of vocational education for eight years at the Directorate of Vocational Education, Ministry of Education and Culture, the personal characters required by workplaces can be identified as follows: work ethics, intellectual curiosity, reliability/dependability, self-discipline, honesty, commitment, responsibility, respects for self and others, tolerance, hardworking, interpersonal relationship/sociability, integrity, good manners, communication, perseverance, work motivation, cooperation/teamwork, initiative/ resourcefulness, courage, diligence, integrity, adaptability, self-control, faster learner, willingness to learn new things, knowing how to learn, flexibility, and entrepreneurship.

Some workplaces may require all of those personal characters, but others may only need some. Those personal characters (heart set) should be prepared by vocational education and training institutions because they are all as the education of the heart are required by the workplaces. However, a lot of vocational education and training institutions still disregard character education although they are considered very important by the workplace. It is urgent for vocational education and training institutions to prepare workforces with good characters, both for wage employment and for small and medium enterprises (SME). At the present time, however, personal characters education for SME is ill-prepared and ill-implemented. In the case of Indonesia, SME is very important generator for employment opportunity. The data shows that 70 to 75 percent of all people in Indonesia are employed in small enterprises.

Therefore, it is suggested that current and future workforce education should be also geared toward SME (entrepreneurship/management of SME) and not only for wage employment. Entrepreneurial spirits, knowledge, skills, and behaviors for developing SME should be the core business of vocational education and training institutions. Educating current and future workforce for entrepreneurship (SME) is not only supplementary, but it should be considered as a must, considering their inherent capacity to absorb a large proportion of new entrants into the labor market in Indonesia.

Obviously, this view will require new philosophy and practices in educating future workforces.

Also, we are all aware that the future is still uncertain and the pace of change becomes faster and faster. Therefore, it is also important that vocational education and training institutions prepare workforces with strong broad-based, multi-skilled, flexible/adaptive skills, technology-literate, entrepreneurial skills, and good desirable personal characters that can be seen from the capacity of solving problems, ability to work in teams, and learning how to learn, to mention just a few. The rapid changes around us also push more and more in the direction of lifelong learning, where the distinction between initial and continuing education disappear.

G. Strategy for Implementing Workplace Personal Character Education Programs

As cited from the above literatures (USA, UK, Australia, New Zealand) and many other countries have embarked new policy of education in general and vocational education and training in specific, that is, developing workplace skills. In Indonesia, 1994 was the time when major policy shift on education and training was embarked in order education and training in Indonesian school-based systems contributes to the smooth transition of graduates from school to work. Obviously, personal character required by the workplace was one of the major policy shifts, in which, developing work attitudes was the major challenge.

This major policy shift is called LINK and MATCH. Within the education establishment schools must LINK with the world of work, and MATCH the quantitave and qualitative requirements that stem from this world of work (Ministry of Education and Culture, 1994). Later on, in 1997, the Taskforce was formed where I was a member of that Taskforce. The Taskforce was then produced A WHITE PAPER called SKILLS TOWARD 2020. This major policy shift in Indonesian vocational education and training system is now still used stir the development of vocational education and training institutions in Indonesia.

The WHITE PAPER suggest that demand-driven vocational education and training system guided by labor market signals and competency standards required by the workplaces was used as reference for developing vocational education and training system. Experiential learning was then introduced intensively with its different alternative models such as dual system, apprenticeship, cooperative learning, industrial

experience, entrepreneurships and teaching factory were introduced massively throughout the country. The idea is good, but as many academicians and practitioners criticized, the devil is at the details of implementation.

Regardless of the criticisms, LINK and MATCH is still strongly used as a guide to develop vocational education and training in Indonesia. Related to personal character development in vocational education and training i9nstitutions, the following 12 salient points may be used as considerations:

1. Teaching for what, dealing with the objective of personal character development;
2. What to teach, dealing with curriculum (teaching materials);
3. Teaching for whom, dealing with student characteristics;
4. What types of teaching-learning process, dealing with types and forms of teaching;
5. Who will teach, dealing with the qualification and competent teachers;
6. How to teach effectively and efficiently, dealing with strategies and methods of teaching;
7. How to manage the classroom and laboratory, dealing with class room and laboratory management;
8. With what to teach, dealing with teaching-learning media;
9. Where to teach, dealing with the setting/contexts;
10. How to evaluate, dealing with student evaluation;
11. How long to teach, dealing duration of teaching; and
12. How to use time effectively, dealing with time on task

The seminar participants may add more on the list because these are not the only.

H. Summing up

I have shared with you some of my pertinent ideas on how develop personal characters education in vocational education and training institutions. Within a dynamic environment, a premium is placed on developing workforce on the workplace know-how, smart mind, good heart (personal character), healthy physics, and consequently good behaviors, where the personal character is the focal point of this seminar paper. The major challenge to face is how to reach consensus among vocational education and training institutions on the one hand, public and private enterprises on the other, and the parents on the last hand, regarding the roles and responsibilities of each side in

improving personal characters suitable to the needs of world of work generally or workplaces in particular. Thank you.

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ISSUES, CHALLENGES, AND OPPORTUNITIES IN SKILLS DEVELOPMENT IN SOUTHEAST ASIA: SEAMEO VOCTECH'S PERSPECTIVES ON TVET

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Abstract

Southeast Asia is a very dynamic region and has been actively involved both in the regional and global affairs. With a very diverse socio, economic and political background, the regional organizing body such as ASEAN and SEAMEO play significant roles in bridging the gap and uniting the member countries to move closer and work together for better future. Now is a crucial time for reaching the target that has been set up by these organizations and the United Nations. The year of 2015 corresponds with that of the Millennium Development Goals (MDGs), the Asian Decent Work Decade (which was launched by the ILO's tripartite constituents in Asia and the Pacific), as well as the establishment of the ASEAN Community. Technical and Vocational Education and Training (TVET) is one of the important tools to accomplish these goals, especially in enhancing productivity and sustainable development through skills development. This paper addresses some of the issues and challenges regarding what types and at what level of skills—'soft' and 'hard'—that vocational and technical graduates should possess that correspond to various environmental factors in Southeast Asia. Some other issues such as TVET processes, skills standards, certification and recognition of skills will also be addressed. In addition, the paper also shares some opportunities that TVET practitioners should seize especially in the era when it gains important momentum to address various issues e.g. poverty, employment, and sustainable development; increasing number of TVET sector and labor mobility in the region.

Keywords: Skills development, issues, challenges, opportunities, technical and vocational education, training, Southeast Asia.

A. Introduction

Skills development has been a major accompaniment for growth in countries in Southeast Asia. In the last few years, regardless of global financial crisis, countries in this region are still showing considerable economic growths. Putting emphasis on skills development through vocational education and training is the viable option. One of the challenges related to TVET is how to forecast future skills' demand to meet the changing needs of these growing economies (Palmer, 2007). Developing relevant TVET programmes that correspond to current and future needs of labour market and students/trainees remains the top issue for policymakers and practitioners.

At the international level, TVET has gained momentum and played important roles in preparing the qualified future workforce. In fact, under United Nation it has a wider mandate to address various social, economic, and environmental issues. The Bonn Declaration in October 20014 states that it is believed to be the master key that can alleviate poverty, promote peace, conserve the environment, improve the quality of life for all and help to achieve sustainable development. This international thrust has trickled down to the regional and national levels, including Southeast Asia.

Countries in Southeast Asia have placed TVET as an important and integral part of the mainstream education, the general or academic tract. In fact there have been significant efforts to break the barrier between the two types of education by initiating multi-exit multi-entry policy, an articulation that open up an opportunity for students to transfer from and to various types of education and employment.

There are some major developments in the area of TVET in the region. Malaysia and Thailand recently has reestablished TVET at secondary level. Indonesia plans to increase enrollment in secondary-level TVET so that the ratio of students will be 68:32 (TVET: General High School) in 2015. Singapore has tremendously improved the image of TVET through Institute of Technical Education and improved the graduates' employment rate almost 94 per cent.

Realizing that TVET now is in the primetime, this is a great opportunity but at the same time also a challenge for all stakeholders to continuously improve and sustain the momentum so that TVET can fulfill the high expectation for contributing to high productivity and progressive and sustainable development. Some of the issues that TVET institutions should address are raising the skill standards and relevancy. Realizing that TVET doesn't evolve in vacuum, considering various factors such socio, demographic, economic aspects is very important. Using the various examples from countries in Southeast Asia, this paper discusses various issues and challenges, and opportunities in skills development in the region.

B. Country Orientation Towards Skills Development

In this 21st century there are emerging trends that many countries are experiencing. The salient phenomena that we are facing among others are the technology, economic, and social changes (Majumdar, 2009). Technologically we are facing more advanced technology. The online technology that offers almost unlimited

access to information has changed the way we manage and share information. Technological skills are necessary for knowledge workers to improve productivity of organizations.

Many countries are embracing knowledge economy that places more value on the knowledge that catalyses technical innovations and achievements which propel economic gains. This signifies the important role of TVET as breeding ground for the necessary skills and work qualifications (Majumdar, 2009). With globalisation, "labour mobility is on the rise" (Smart, 1998) as people take their talents across borders in search for better prospects (Stiglitz, 2002).

In the social trends, TVT has to play important roles in reducing poverty, promoting sustainable development, equity and inclusive growth. Educational focus must shift towards more enduring skills, such as life skills, language capabilities as well as research skills while continuing to provide rigorous training in current technical skills (NORRAG, 2007, p.24).

The orientation of skills development in Southeast Asia varies depending on the country's status of development and the influence of international agencies in the country. Examining the practices of the international training and donor agencies in Southeast Asia, skills development in Southeast Asia can be grouped into three approaches or orientations: poverty reduction, economic and social development, and governance. According to Langstaff, Weyer, and Carton (2007). The Poverty Reduction approach is based on the hypothesis that through skills development different types of poverty can be alleviated. Multilateral agencies in general are the main promoters of skills development for poverty reduction and the fight against exclusion. The objective of poverty reduction is usually related to the Millenniums Development Goals (MDGs) and Education for All (EFA) vision. As a result, basic education (primary education in particular) is given priority and gender issues are taken into consideration.

Skills Development (SD) is considered as the cornerstone of economic and social development. Institution building and workforce development are priorities and TVET and Higher Education are also components of SD for economic and social development.

The governance approach is a way to look at skills not just for developing economic growth or for fighting poverty, but to train people to be able to reflect on and define the right balance between economic and social development. In this sense,

governance is a prerequisite for poverty reduction and development. Behind the governance approach there are some other objectives, for example: developing democratic institutions; combating corruption; promoting human rights; facilitating decentralisation; and building peace and security.

Issues and challenges in Skills Development

There are many issues and challenges in skills development in Southeast Asia. This section will only focus on the selected issues and challenges namely (1) Training content to meet current and future demands, (2) Training processes, and (3) Skills standards, assessment, and recognition.

Training content to meet current and future demands

To decide what types and levels of training, training providers should map out the demands whether the provider is aiming at fulfilling local, national, or international demands. There is big potential labor market in the region. ASEAN's labour force is massive and still growing. In 2015 it is expected to have around 225 million. In 2015, the services sector is expected to be the largest sector in terms of employment in the region, accounting for over 41 per cent of total employment. Small and medium-sized enterprises (SMEs) provide jobs for the majority of workers in the region (ranging from more than 50 per cent in Singapore to more than 90 per cent in Indonesia) (ILO, 2008). The ILO report (2008) highlights that labour productivity, education and migration play important role in shaping the Southeast Asian's competitiveness, growth and development.

Productivity growth is one of the main determinants of a country's overall competitiveness. It is also essential for creating quality jobs and reducing poverty: Increased labour productivity can lead to higher wages, better working conditions and more investment in human resources. In recent years, China has overtaken ASEAN in terms of output per worker, while the gap between India and ASEAN has markedly narrowed. Significant disparities between ASEAN countries are evident: Singapore's productivity level was nearly 12 times that of Cambodia, 9 times that of Myanmar and 8.5 times that of Viet Nam. Please refer to Table 1 for details.

Table 1. Output per worker (1997, 2002, 2006-2007), and growth in output per worker and employment (1997-2002, 2002-2007), selected economies

	Output per worker, constant 1990 US$				Average annual growth in output per worker (%)			Average annual employment growth (%)	
	1997	2002	2006	2007p	1997–2002	2002–2007p	2007p	1997–2002	2002–2007p
Singapore	37 226	41 085	47 037	46 494	2.0	2.5	-1.2	1.4	4.2
Malaysia	19 457	20 703	24 154	25 045	1.2	3.9	3.7	2.2	2.0
Thailand	12 180	12 420	14 626	14 999	0.4	3.8	2.6	0.7	1.6
Indonesia	8 688	8 415	9 941	10 066	-0.6	3.6	1.3	1.4	1.7
Philippines	6 723	6 827	7 685	8 075	0.3	3.4	5.1	2.7	2.3
Viet Nam	3 503	4 144	5 131	5 453	3.4	5.6	6.3	2.7	2.3
Myanmar	2 509	3 478	4 944	5 082	6.7	7.9	2.8	3.7	3.6
Cambodia	2 845	2 873	3 530	3 772	0.2	5.6	6.9	7.6	4.7
ASEAN	8 206	8 272	9 738	10 020	0.2	3.9	3.0	2.1	2.2
China	5 342	7 323	10 939	12 101	6.5	10.6	10.6	1.1	0.9
India	4 441	5 201	6 614	7 003	3.2	6.1	5.9	2.0	2.5
Korea, Rep of.	28 688	33 735	38 158	39 512	3.3	3.2	3.6	0.9	1.1

Note: ASEAN productivity figures exclude Brunei Darussalam and Lao PDR
Sources: The Conference Board and the Groningen Growth and Development Centre, Total Economy Database, January 2008, http://www.conference-board.org/economics; National statistical offices (Cited from ILO, 2008).

An estimated 1.5 million ASEAN workers leave their home countries each year to work abroad, including within the ASEAN region. While the shift of workers from agriculture to industry and services in some low- and medium-income ASEAN countries will continue to support productivity growth, the pressure to innovate and improve efficiency within sectors will become increasingly important.

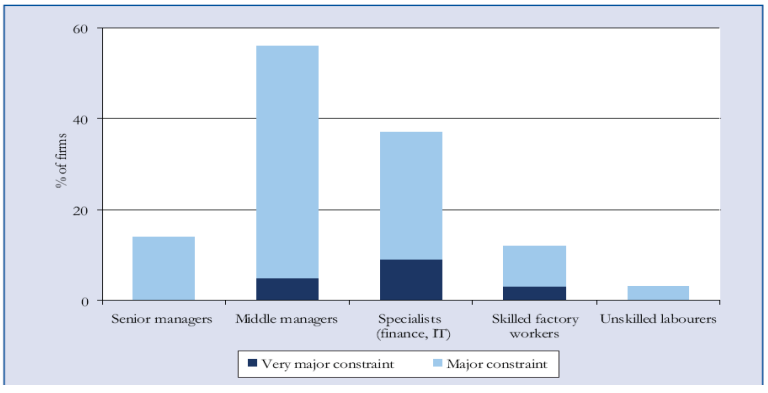

Figure 1. Staff shortages as a constraint in South-East Asia (%)

Source: EIU: Asia Business Outlook Survey, 2008 (Cited from ILO, 2008).

Growing employment in the area of services and manufacturing is quite significant in Southeast Asia. Agriculture, regardless of the dominant sector in most countries, experienced negative growth in employment; see the details in Table 2.

Table 2. *Change in Employment and Annual Growth by Sector of Employment in Southeast Asia*

	Total change in employment ('000s)			Annual growth rate (%)		
	Agriculture	Industry	Services	Agriculture	Industry	Services
ASEAN*	324	8 445	13 314	0.1	3.6	2.8
Cambodia	310	540	1 110	1.4	15.3	15.5
Indonesia	-544	2 078	4 086	-0.2	2.1	1.9
Lao PDR	236	159	-22	1.5	15.1	-1.2
Malaysia	-208	109	1 051	-2.1	0.6	3.5
Philippines	1 765	454	3 198	2.6	1.6	3.8
Singapore	0	18	307	1.1	-1.5	2.9
Thailand	-780	1 223	2 847	-0.8	3.0	4.0
Viet Nam	-670	3 388	3 463	-0.5	9.4	5.8

Note: *ASEAN regional figures exclude Myanmar. The starting and ending years for the calculations are 2000 and 2006, respectively, except for the following countries: Cambodia (2000, 2005); Lao PDR (1995, 2003); Singapore – agricultural sector only (1997, 2004).
Source: ILO, Global Employment Trends Model, 2008; official data from national statistical offices.

Considering the existing and the predicted employment sectors both at the local, national and regional level is one of the important steps in designing appropriate programmes at secondary, industry-based and non-formal TVET. For postsecondary level TVET, the programmes can follow or lead the employment trends by introducing new programmes that can create new competitive advantages. The initiatives of opening new programmes or leading the trends in employment should be based on strong research and development.

In responding to the technical skills, TVET institutions should not offer narrow occupational skills aiming for the needs of particular companies. Focusing on narrow occupational skills appears to be a major problem; instead there is a need to take a sectoral approach and look at all competencies that are performed in a given sector. Even though narrow skills are very relevant to meet the needs of particular businesses or industries, this will limit career mobility or options.

Besides the technical skills or "hard" skills that corresponds the employment sectors, TVET should also prepare students with the "soft" skills, such as communications skills, team work, work ethic, etc. These soft skills are prerequisite for employment and for moving up the next level of skills. According Gray and Herr (1998), there are three levels of essential basic occupational skills: Level 1, work ethics/ soft skills; Level 2, basic academic skills; Level 3, occupational specific and advanced workplace literacy skills. Please see Figure 2 for illustration.

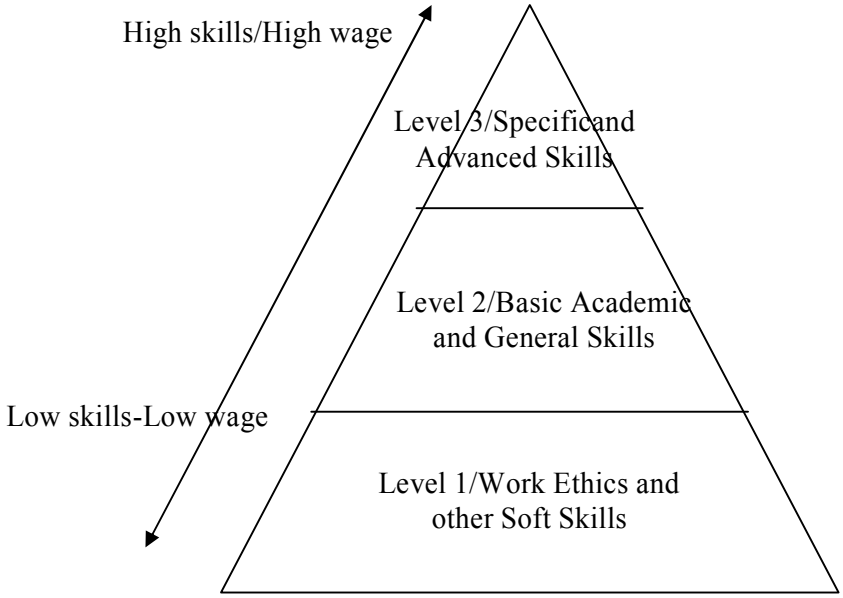

Figure 2. Skills Pyramid

Level 1, work ethics, including other soft skills are very important or basic prerequisite for anyone to work. Many research findings support the importance of soft skills in today's work. According to Casner-Lotto & Barrington (2006) soft skills include among others professionalism or work ethic, oral and written communication, teamwork and collaboration skills, critical thinking or problem-solving skills are very crucial. These skills are consider more crucial than the basic skills such Reading, Writing, and Arithmetic, Humanities, and History.

The issue now is how to teach and assess soft skills. The practices vary in Southeast Asia; some teach it as an integral part across various courses, others teach it as special courses, and the rests only monitor whether students have fulfilled the criteria listed in an assessment form but do not teach it.

Level 2, basic academic skills, includes among others Mathematics, Science, Language, History, Physics, Basic Engineering or Economic Courses are the basic vocational and technical skills that prepare individual to adapt easily and to learn faster in any job situations. These are prerequisites to move to next level, the more specific and advanced vocational and technical skills.

Level 3, specific or advanced occupational skills, are the skills needed to perform specific tasks in the occupation. These are the prerequisites to compete for higher salary level skills. Some argue whether these specific skills should be taught at the secondary level or should be taught at tertiary or learned from outside of schools.

TVET should prepare students for mastering all the three levels of skills to make them competitive in the labor market. For employability level one is vey crucial and for receiving a high salary position a candidate should master all, especially the level 3 skills.

Training processes

There are many ways of delivering TVET: formal, non-formal, and informal education and training. The formal TVET either through formal schooling or formal training plays important roles in skills development. In most cases formal schooling is usually administered under the Ministry of Education and the formal training is under the auspices of Ministry of Labor.

The non-formal either through company-based training or community-based training is also contributing significant portion of manpower skills development. The informal training either through family or personal learning experiences regardless of limited recognition, is also very important in contributing to individuals' skills.

The current trends in recognizing skills acquired from various ways, including non-formal and informal training that is commonly called Recognition of Prior Learning, will make TVET more efficient, effective, and attractive. This will eventually benefit not only the candidates but also the company and the national productivity as well.

Skills Standards, Assessment and Recognition

Skills standards. There are two main approaches of how skills standards are developed: top-down and bottom-up approaches. In the top-down approach, skills standards are usually developed at the national level. The national body is formed representing various educational and training stakeholders. The common composition of this body is government representatives, business and industry representatives, professional association, and education and training specialists. Training providers will use this national skills standard as a guideline in developing the curriculum, the training content, and assessment. Since most of the national skills standards are usually general, the training providers can interpret or enrich the contents according the local needs. Most of skills standards of this type addresses national-level. At the implementation level, however, not all SEAMEO member countries have widely adopted the national skills standards due to various reasons: the unavailability of the standards, limited scope of standards, and lack of enforcement and recognition (SEAMEO VOCTECH, 2006).

The second type skills standards, the bottom-up approach, are developed by businesses or industries or training certification company who specializes in certain area. At SEAMEO VOCTECH, for example, IC^3 (Internet and Computing Core certification) and Microsoft Office Specialist by Certifort, U.S.A.; ICDL (International Computer Driving License) and e-Citizen by ECDL (European Computer Driving License) Foundation, and other various certification by Pearson Vue are some examples of skills standards developed by private business/industry.

The second type of skills standards is usually more explicit and details in terms of scope and content of the skills standards. Since the companies are usually for profit organisations, they try to get as many participants as possible to generate funds. It is up to the employers in recognizing the certification. The government has a minimum or no involvement in promoting or recognizing the certificates issued by these training and testing companies.

Most of the skills standards adopted by training providers were focused on prescribed skills to perform the relevant jobs; the employability or soft skills have not received enough attention yet. Efforts to integrate soft skills in the qualification framework should be continued considering that these skills are considered very important by employers.

Assessment of Skills. In this section, the paper will highlight assessment methods commonly used by training providers in SEAMEO member countries and the assessors involved in the process. The most common assessment techniques used were written tests and demonstrations of skills. The written tests mostly assess the knowledge of the participants about the areas being tested. The demonstrations were used to assess participant's skills in performing related tasks. The use of documents, such as portfolio, is getting more popular in some countries like Indonesia, Singapore, Thailand, and the Philipinnes.

Most training providers in the region hire their own assessors, the trainers or instructors, to assess participants' skills competencies, except in Indonesia hiring the assessors from various stakeholders is more common.

*Skills Certification***.** In a country where national skills standards have been developed and enforced, most training providers used the standards as a guideline in developing their curriculum, designing the course content, and assessing their students' or trainees' competencies. Training providers are the most common primary agent that issue certificates. The next common practice is that the certificate is signed by two parties, training provider and business/industry partner. In formal VTET, a graduate may receive a diploma and several certificates issued by private agencies. In Indonesia, secondary VTET students must take national examinations and may take as many certificates as they want from other agencies like CISCO, Professional Association, or other training and certification provider to increase their employability.

Many countries in the region have become more interested in adopting National Qualification Frameworks (NQFs), which are often seen by governments as a solution to both national and regional skills recognition. However, there is increasing debate in both the policy and academic literature about whether NQFs aresuitable for developing countries (Grunwald et al., 2004; King and Palmer, 2007; McGrath, Martins, Smith, Cachalia and Kane, 2005; Young, 2005); the consensus of opinion at the moment suggests that they are not.

Skills Development Opportunities in Southeast Asia

Expanding the key players and their contribution

The role of the government in skills development is very strong in all Southeast Asian countries. Even though individual and private companies, institutions or organizations have important roles in skills development, the government is still the major player. All public agencies and government ministries at the certain level also contribute and participate in skills development. In general, however, two Ministries—Ministry of Education and Ministry of Labor (different names are used in this region)—are the major players in skills development. Ministry of Education is responsible for formal education and schooling; while Ministry of Labor is responsible for providing training to school leavers and providing assistance in job placement. Ministry of Labor play important roles in coming up with skills standards that in some cases have duplication or incoherent with the one developed by Ministry of Education.

Public-private partnerships are becoming more popular especially in countries that have big businesses and industries such as Singapore, Malaysia, Thailand, Indonesia, Philippines, and Vietnam. This can be a major player in future and will help sustain skills development.

The contributions from international and foreign agencies for skills development in developing countries in Southeast Asia are also very significant especially in Cambodia, Lao PDR, Myanmar, Timor Leste, Vietnam, and Indonesia. The list of international agencies that are predominant in assisting the above countries are USAIDS, AusAIDS, ILO, UNESCO, UNEVOC,JICA, KOICA, InWEnt, the World Bank, SwissContact, SEAMEO.

In order to maximize skills development, expanding the key players, especially by engaging private sector is very crucial. This will not only contribute to the relevancy of TVET but also its sustainability. At the same time, the involvement of private sectors can be enhanced by engaging more in the planning, execution, and evaluation of the programme. Improved coordination among external agencies is also necessary to minimize overlapping.

Facilitating Labor Mobility

Labor mobility is an important element of the envisaged ASEAN Economic Community and the ASEAN Socio-Cultural Community. The statistics shows that 13.5 million migrants originating from ASEAN, of whom 5.3 million living in other ASEAN

Member Countries. According to Kim (2008), Philippines, Indonesia, and Myanmar are the major senders of 3.6 million, 2.3 million, 1.6 million migrant workers respectively. The major destination countries are Malaysia and Thailand with 1.9 million each, and Singapore 1.2 million. According to Kim, the economic and social benefits of migration both for sending and receiving countries are enormous.

To prepare students with more suitable skills not only working in the country but also abroad, TVET should incorporate inter-cultural understanding and international languages—especially English. Indonesia has been sending TVET students to attach in foreign companies. Mastering foreign language competency, especially English, is also mandated for TVET students regardless of some limitations. Students in Singapore are also having an exposure to learning about and working in conditions outside of their culture, country, and region, so as to benefit from opportunities abroad which are on the rise due to globalization (Tiew Ming, 2007). This initiative is also happening in other countries in the region.

C. Concluding Remarks

A good-quality workforce equipped with the knowledge, skills and attitudes required by the economy can drive national competitiveness and spur economic development. Appropriate skills development to prepare well-trained workforce is necessary so that they are better equipped to effectively and quickly adjust to shifting labour markets, changing technologies and new business practices.

Addressing various issues, including the one discussed above such as the content, the delivery, and Skills Standards, Assessment and Recognition is very crucial. The expansion and intensification of role players in TVET will also help strengthen TVET that eventually can improve productivity and the development of the country and the region. Embracing the trends of labor mobility by preparing our students with necessary "soft" and "hard" skills will eventually benefit every nation in the region. This inline with ILO report 2007 that labour productivity, education and migration play important role in shaping the Southeast Asian's competitiveness, growth and development.

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SOFTSKILLS INTEGRATION IN THE PRACTICAL LEARNING FOR THE INDUSTRY RELATED JOB READINESS

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Abstract

This paper constitutes part of quality improvement of the Vocational High School (VHS) graduates for their work preparedness in accordance with the requirements of the employment markets in industry field. The survey, through observations, questionnaires and interviews of the practitioners (HRD) and the supervisors of the Central Java-based garment industries, showed that their responsiveness to the soft skills of the Vocational High School-dressmaking graduates was categorized low, while the demand for the soft skills was categorized highly expected, there was thus a gap between the soft skills of the vocational high school graduates (dressmaking programs) and the workforce demand (garment industry). One of the causes of the gap was the learning process that poorly equipped the students with the soft skills.

For this reason, it is important to revise the learning approach by the integration of the soft skills into the practical learning that makes the students being able to realize the meaning inherent in the subjects they study by relating them to the context of the real and authentic work force. Moreover, the teachers' high commitment is needed as one of the main components in the learning process for the improvement of the work system insight in industry and for the learning guidance in preparing the students for working, since the competent and skilful-technique capacity (hard skills) without any support from the soft skills in accordance with the work requirements might be meaningless for a successful job.

Keywords: soft skills; Vocational High School; dressmaking program; garment industry.

A. Introduction

The job opportunities offered by the work force markets were yet to be fulfilled because the existing graduates were not fully absorbed in the work markets (Dedi S, 2002: 612). Data of the Central Bureau of Statistics (BPS) indicated that the unemployment rate of August 2008 was, based on the educational background, largely dominated by the graduates of Vocational High School (SMK) of 17.26 percent, followed by those of Senior High School (SMA) 14.31 percent, and university 12.59

percent. Such condition revealed the gap between the work market demand and supply and the availability of the work force from the educational institutions.

The role of the educational field in producing the quality graduates was questionable by the work world. The industry world highlighted the low quality of the graduates, including that of the Vocational High School graduates of dressmaking programs. In fact they have passed the competency test and acquired the certificate, but when they engaged in the work industry they found difficulty to cope with the work systems in industry. As a result, the dressmaking programs graduates largely acquired impermanent works or they often changed their works. This situation was due to such factors as their inability in adapting to the production management system of the garment industries, in working together as a team, or mentally they couldn't help to experience work pressures and also their bargaining positions in work market were low. When searching for the recruitment on-line garment manufacturing in Indonesia, the requirements most frequently appeared for the recruitment of the candidates workforce for the production line position were be able to working under high pressures, working overtime, be readily placed in the production area, and receiving the predetermined time target, physically and spiritually health, no use of glasses, and even those who were incapable of sewing will be provided with sewing course or training (http://acecnews.blogspot.com/2008/03/ungaran-sarigarment.html).

The recent global competition in the garment industry is getting tight, especially upon the effective application of both *Asean Free Trade Agreement* (AFTA) and *Asean Free Labor Agreement* (AFLA) that gives impact on the demand of human resources with the capacity of performing the production system in line with the market development to be survival in the global trade. Working in the garment industry requires the capacity to subject to the work patterns with high and rapid productivity (*output piece per minute*), mass production with the running-tire production system, and the tightly quality of products. So that, the employees have to acquire good mental readiness and physical endurance to support their work performance.

The need ratio of the soft skills and hard skills in the work market demonstrates that the components that contribute to someone's success in work is his/her mindset of 80% and technical skills of 20%, on average (Neff and Citrin, 1999).

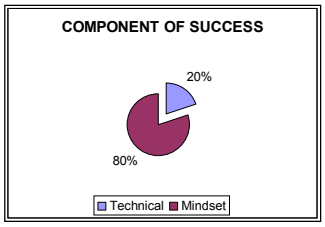

Figure 1
Percentage of *soft skills* as success component

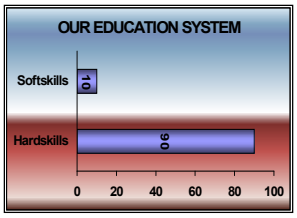

Figure 2
Portion of *soft skills* provided in the educational system

There is a need to shift the thought and action paradigms from the merely focus on the hard skills to the creation of synergism between the hard skills and the soft skills. The questions are now how to make the treatment of the soft skills being not a burden to the learning process of the Vocational High School, and how to make it being not a compel for both the teachers and learners. One answer to the questions is by the integration of the soft skills learning process into the practical learning approach. This requires a sincerity and creativity on the part of the teacher propping up the education and training course. According to Johnson (2007) the development of the soft skill at school must be based upon the real life, high level of thinking, learners' activities, being applicable, the problem-based learning, authentic teaching, relevance-based teaching, project-based learning, work-based learning, service-based learning and cooperative learning.

B. Analysis of the gap soft skills demand in the garment industries work

Data of the research results, collected through the demand driven approach with survey method of the garment industries at the industrial area in the regions of Sukoharjo-Solo and Bawen Semarang of Central Java (December 2009 – February 2010) were presented in Table 1 below:

Table 1

Garment Industry Expectations and Response of Soft Skills
To The Dressmaking Program Graduates of SMK's

Attributes	Average score of Expectation	Average score of Responsiveness	Gap
Confident	4,81	1.82	2,99
Responsibility	4,95	2.23	2,72
Motivation	5.00	2.59	2.41
Dedication	4.73	2.41	2.32
Initiative	4.73	2.05	2.68

Attributes	Average score of Expectation	Average score of Responsiveness	Gap
Self control	4.95	1.59	3.36
Discipline	4.95	2.64	2.31
Loyalty	5.00	3.09	1.91
Tenacity	4.77	2.50	2.27
Accuracy	4.95	2.50	2.45
Austerity	4.95	2.55	2.40
Honesty	5.00	3.09	1.91
Spirit	5.00	2.64	2.36
Struggle Power	4.86	2.45	2.41
Adaptive	4.82	1.50	3.32
Competitiveness	4.95	2.18	2.77
Communicative	4.64	2.00	2.64
Responsive	4.77	1.82	2.95
Teamwork	5.00	1.59	3.41
Leadership	4.86	1.36	3.50
Average score	4.40	2,23	2.17

Source: Processing data of the research results

From Table 1 it was demonstrated that the practitioners (HRD) and supervisors of the garment industries who gave responses to the questionnaire of the study were in high expectation and considered the *soft skills* the important elements needed by the graduates of SMK's. It was showed by the average score of the total score of 4.40 categorized as highly expected. The responses to the soft skills of the SMK graduates were 2.23 in average score categorized as low. The gap between expectation and responses to the SMK graduates' soft skills in the garment industry was 2.17 .

To find out the factors that resulted in the gap between the expectation and responses of the users to the soft skills of the SMK graduates, then a bibliography study, interviews, and a study of the research findings of the learning process at the SMK were then conducted. The causing factors of the supply and demand gap on the soft skills of the graduates of the SMK-dressmaking study program in the garment industry were demonstrated in Table 2.

Table 2 Analysis of soft skills gap between the needs of the workforce in industry and the vocational learning outcomes

Work System in Garment Industry	Gap	Learning Process at Vocational High School
Production process is *continuous line flow* so that each operation is dependent to each other	+ Cooperation Communication Leadership -	Practical learning is individual with one-way communication from the teachers to the students
Using fundamental principle of *lean manufacturing* concept that is *Kaizen* (succinct, neat, clean, treated, diligent) and secure	+ Discipline Responsibility Careful Honest Mental endurance -	The K3 concept is theoretical and not applied yet consistently in the practical learning
Industrial and trade competition will always refers to six determinant factors: price, quality, desain (taste), delivery time, marketing and services.	+ Competitiveness Tough Adaptive Enthusiastic Mental endurance -	Work result measurement is based on value factors 0 - 100
Measurement of work quality on two basis: good (accepted) and poor (rejected). The acceptance of product quality influences selling price, if failed will be lost.	+ Fighting spirit Competitiveess Mental endurance -	Work result quality for academic achievement
Production process uses *specification sheet*	+ Reponsive Careful Thorough Fighting spirit -	Practical learning not using work sheet. Teacher explains assignments orally, and students work them out by guessing

Source: data of research findings

Remark:

+ : impact of production system on the need level of work characters

- : impact of practical learning output on the graduate work characters

C. Integration of Soft Skills in the Practical Learning

Soft skills are personal attributes that enhance an individual's interactions, job performance and career prospects. Unlike hard skills, which tend to be specific to a certain type of task or activity, soft skills are broadly applicable (Parsons, 2009). Soft Skills are defined as "personal and interpersonal behaviors that develop and maximize human performance (e.g. coaching, team building, decision making, and initiative). Soft skills do not include technical skills, such as financial, computer or assembly skills" (Berthal, 2003). Burns, Baker, and Klinger (tth) interprets that Soft Skills- refer to the cluster of personality traits, social graces, and facility with language, personal habits, friendliness, and optimism that mark people to varying degrees. Other sources describe that Soft skills complement hard skills, which are the technical requirements of a job (http://en.wikipedia.org/wiki/). Then, soft skills are part of personal skills more related to someone's gentleness or sensitivity toward his/her surrounding environment**.** Since

soft skills are more directives to the psychological proficiency, its effects are then more invisible but remain perceptible. Soft skills are one's ability to have relation with others (including with his self). Attributes of soft skills encompass the attached value, motivation, behavior, habit, character and attitude.

Everyone has their own attributes of soft skills in varied levels, largely influenced by their ways of thinking, words expression, behaving and attitude. But these attributes may change through continuously adapting oneself to the new things. This process will bring about a permanent habit after consecutively practicing it for at least 90 days (Aribowo, 2005). Soft skills play important role in every aspects of life, both in someone's individual life, in society and in work place. In personal life, they may enable someone to improve his/her self. They teach someone to do positive things for him/her own self and prevent the negative things from being harmful to an individual.

Providing the learners with the soft skills does not necessarily mean developing new subjects, but adding values and meaning to the subjects. The very nature of education is man humanizing. A human being will interact with others in his/her environment in a harmonious manner. Therefore, learning process must lead to learning to know (knowing more), learning to do (doing best), learning to be (being better), and learning to live together (living in harmony) (http://www.unesco.org/en/esd/strategy/). From various kinds of learning models, some are very useful in improving the soft skills of the learners. Such models, among others, are Cooperative Learning, Experiential Learning, and Contextual Teaching and Learning.

Cooperative learning directs the learning process to the improvement of such competencies as cooperative collaboration, teamwork, sharing, managing, organizing, problem solving, and decision-making. Experiential Learning is an educational model that utilizes experiences as media and source of learning. In this model the learners are directed to experience and to actively search for comprehensive understanding of the experience and then to discover the meaning and value of the experience. The experience may come from the real situation and event or from a simulation of the real condition. From this, the learners acquire knowledge, understanding, skills and motivation to take action.

Contextual learning is an educational process with the purpose to assist the learners to understand the meaning existing in the subject matters they learn by relating

them to the personal, social, and cultural contexts of their daily life in a real and authentic way. The components in the CTL include, firstly, constructivism that directs the learners to autonomously structure and develop the meaning of new based on certain knowledge, and then relating the meaning to the real context of life. Secondly, questioning that is conditioning the learners to think in a critical way and open the dialog between students, teachers and students, students and resourceful person and environment. Third, inquiring, this is a cycle process in developing knowledge/concept initiated in conducting observation, asking questions, investigation, data collection and analysis, concluding, and then developing theory or concept. The fourth component is learning community, functioning as communicative tools to share experiences and ideas and then testing and processing them. Fifth, modeling, this is finding out and developing a model applicable in the societal context. Sixth, reflection, which is reviewing or tracking an event, activity and experience to identify the weaknesses and limitations and then getting them improved and perfect. Seventh, authentic assessment, which real evaluation of all aspects knowledge, skills, behavior and personality by taking the learning process and result into account.

Therefore, it is needed to revise the learning model of the Vocational High School to provide the learners with the soft skills useful for the work requirements.

Traditional:

TEACHER'S ACTIONS	*EFFECTS ON LEARNERS*
1. Presentation of a pattern	Look, listen, memorize
2. Elicitation of a pattern	Repeat with whole class
3. Controlled practice (slight pattern variations)	Repeat and vary in pairs
4. Free practice (more expanded variations)	Repeat with more variation in groups
5. Written reinforcement	Repeat in writing

Revised:

LEARNERS' ACTIONS	*EFFECTS ON TEACHER*
1. Look, discuss and guess the point	Display pattern, stimulate discussion
2. Receive confirmation or correction	Give solution on board or to groups
3. Repeat, vary, discuss	Guide practice, encourage discussion
4. Invent questions/exercises for other groups	Monitor group work
5. Exchange questions; discuss and write answers	Encourage exchange, monitor writing
6. Discuss as a class with teacher	Guide discussion, summarize findings

Figure 3: Teacher-centered vs. student-centered lesson plan
(Source : Goeran Nieragden, Cologne: 2000)

D. Discussion

Based on the data can be analyzed that implications of the soft skills development in the industry-based practical learning can be seen below:

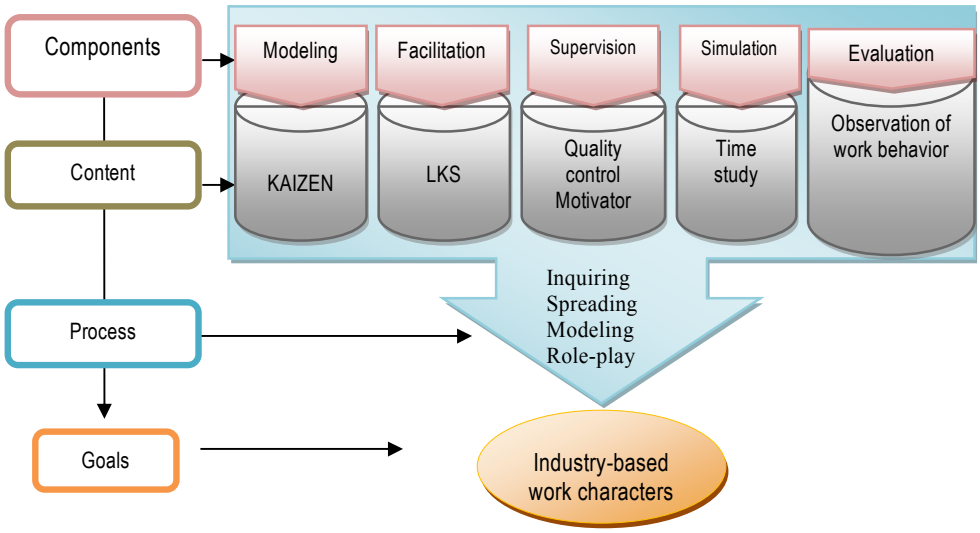

Figure 4. Integration of Soft Skill Development in Practical Learning

The integrated structure of soft skills development in the practical learning includes two components: (1) learners, and (2) teachers. Teachers are as models (modeling, facilitation, supervision, and evaluation. Whereas the content of each component includes the following:

1) Kaizen, a succinct, orderly, clean, treated and industrious work inuring in implementing every job to increase basic mentality including the way of thinking and acting in conducting daily works/activities and the attitude supporting the application of work management system (Imai, Masaaki, 1997).
2) The learners' spreadsheets are instrument to record the students' work habits. Adopted from the worksheet used in the production system in garment industry (Juan Carlos, 1998).
3) Supervision is the activities taken by the teachers including (1) work identification, (2) observation, (3) giving assistance as needed, (4) motivating
4) Time study, is a simulation to measure the students practical learning process to get the truth of time in completing a job. Adopted from measurement system working in the garment industry (Meyers, et all, 2002).
5) Evaluation by observation and self monitoring of the learners.

E. Conclusion

The integration of *soft skills* development in the practical learning process for the preparedness to work in the garment industry can be summarized as follows:

1. The Vocational High School (VHS) defines the soft skill attributes to be developed in the next 5 years based on the market signals, that is the opinions of the users of the graduates and the alumni;
2. The SMK identifies the soft skill attributes that the learners have acquired and those are to be developed in terms of the work demands targeted by the graduates through the observation of the students' behaviors in the learning process and self-evaluation done by the students themselves;
3. The care and commitment by the teachers at the Vocational High School (SMK) in developing their students' soft skills by considering the work system (production) adopted in work field (industry) to be applied in the learning process;
4. The Vocational High School (VHS) revises the traditional learning process by the application of the useful learning model in enabling the learners to get comprehensive understanding of the subject matters they study by relating them to the daily life context personal, social and cultural in a real and authentic way.
5. Undertaking the planned and evaluated-learning activities that may develop the students' soft skills in accordance with the work (industry world) requirements in which the teachers take the role as models through inuring, role-playing and spreading in the practical learning process.

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INTEGRATING SOFT SKILLS INTO VOCATIONAL HIGH SCHOOL CURRICULUM ON CIVIL ENGINEERING

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Abstract

The success of workers in the construction services sector is not only determined by the mastery of hard skills but also of soft skills. The needs for both types of skills among workers in the construction services have been formulated in the "SKKNI" civil engineering field as a key competence that must be possessed by a person to achieve the performance required in construction services. Due to the relationship between the demand-supply of vocational high schools (VHS) and construction industry, it is necessary to adjust the knowledge and skills taught at VHS to the knowledge and skills needed by the workforce.

It is a reality that vocational education at VHS is primarily oriented toward the hard skills; in fact we can say that it is oriented toward the hard skills only, neglecting the necessity of the soft skills. Referring to the soft skills requirement analysis in the work force and to the survey results on construction services indicating that the success of workers is also determined by their soft skills, it is therefore necessary to integrate the soft skills into the VHS curriculum, particularly in the field of civil engineering.

Developing a curriculum which includes soft skills integration can take the following steps: (1) identifying the soft skills required by the work force, (2) integrating the soft skills into the written as well as "hidden" curriculum, (3) deriving the soft skills from the curriculum and inserting them into the lesson plans to be carried out in the teaching-learning process, and (4) evaluating the implementation of the curriculum, particularly to assess students' achievement of the integrated soft skills.

Keywords: integration of soft skills, vocational high scholl curriculum

A. Introduction

The construction of many infrastructures in Indonesia to bring the development of construction industry is encouraging. The infrastructure development to meet the needs of housing, transportation, and telecommunications, both of those was conducted by the Government and private sector to increase from year to year. The increased construction services might be seen from the value trends of work completion encompassing kind of building construction, civil construction, installation of building and civil construction,

and also special constructions is totally up to the year 2008 reached IDR 88,045,621 trillion (Statistics Indonesia, 2009). In line with such increased construction, the demand for the skillful work forces as the operating agents of the development supplied by the Vocational High School (VHS) has been improving as well.

The success of workers in the construction services sector is not only determined by the mastery of technical competencies (hard skills) but also of non-technical competencies (*soft skills*), the skillful work forces provided by the VHS are required not only having *hard skills* but also soft skills. These requirements of work competencies by the construction work field have been formulated in the Indonesian National Competency Work Standards (SKKNI) that include such aspects as knowledge, skills and/or specialties and work attitude (Regulation of Indonesian Minister for Transmigration and Work Force Affairs Number PER.21/MEN/X/2007, 2007). The SKKNI has been utilized as reference to the management of profession education and training, competency test and profession certification in each construction service work for both the expert and skillful work force classification and qualification. In general, the work competencies in the SKKNI are grouped into general, functional, specific, and optional competencies.

The relationship of the VHS and workforce, particularly at the level of skillful workers at the construction field was related to the *supply* and demand of workforces. Viewing the relationship between demand and supply, it is necessary to make the adjustment of knowledge competency and skills produced by the VHS to the competencies required by the work world (*demand-driven*). The adjustment was no narrow in meaning that only indicated a one-way relationship between demand and supply, but it also meant that the focus of the preparation of workforces by the VHS was not specifically on the aspect of technical competency (*hard skills*) only, but also on the non-technical competency (*soft skills*) or the vocational values formed during the education and training processes. According to one study at Harvard University of United States of America, it was shown that someone's success in social life was not merely determined by the technical knowledge and competency (*hard skills*), but it was more by the competency in the management of oneself and others (*soft skills*). This study demonstrated that the success was determined only 20% by *hard skills* and more 80% by *soft skills*. Thus, the vocational education might not just provide the learners

with the limited competency and skills for their future as workforces but also with the non-technical competency to guarantee their success in social life.

It is a reality that in the educational process the VHS, more focus has been on the hard skill content, and it may be even said that the orientation is more on the hard skill learning. Viewing the structure of the VHS curriculum, particularly that of Technology group of subjects in the category of productive education and training, there have been 25,72% class hours used for hard skill subjects, the remaining is allocated to the normative education and training (5 education and training subjects) and the adaptive education and training (8 subjects).

A fact taking place at schools that the development process of the soft skills may not bring about maximum results if the activities done are only in the forms of training, general lectures by the counseling teacher and even by inviting external practitioner from industry world, and workshop. The component of self-improvement in the curriculum structure of the VHS largely facilitates the activities of soft skill development. Self-development aims at giving chances to the learners to improve and express themselves according to their requirement, competency, talent and interest suitable to the school condition. It is facilitated by and/or under guidance of a counselor, teacher, or another education person and can take the form of extra-curricular activities (Regulation of National Education Minister No. 22; 2007). The emerging problems in field are how to integrate the soft skill competency into the VHS curriculum, especially the competency of Architectural Engineering program for the fulfillment of competency requirements of the construction service work. This paper would describe the method of integrating the soft skill competency in the VHS curriculum of the Architecture Technique program.

B. Analysis of the Soft Skills Demand in the Construction Service Work

Many studies have been conducted and they reveals that the success of the VHS graduates at work field has not been determined by the hard skill competency alone, but by the soft skill competency as well. For example, the communicative skills and working in team as part of the soft skill competencies are the requirements mostly needed by almost all work fields. *Hard skills* are defined as a person's technical capacity in mastering knowledge and skills closely related to his/her work. For example, an engineer of civil engineering graduation should master the science and skills of civil

engineering. And *soft skills* are defined as a person's competencies in making relationship with others (*interpersonal skills*) and in self-management (*interpersonal skills*).

The soft skill attributes acquired by every people at different levels are influenced by the way of thinking (mindset), expressing words, taking action and behaving. These attributes may change if the related person manages to change them by accustoming him/herself to the new things. The VHS as a formal institution that produces competencies tends to be the most conducive medium for self-accustoming to the improvement of one's soft skills. It is due to that soft skills are learned through the interaction with others and how a person faces the problems he/she encounters in his/ her life. The soft skills to be improved can be grouped into six categories, including: (a) communication skills both oral and written, (b) organizational skills, (c) leadership, (d) (logic and creative, (e) enduring in facing any pressures (effort), (f) team work and interpersonal and work ethics.

The construction service is a service involving construction planning, consruction, and construction supervision. The quality of product services is largely determined by the acquisition of workforce competencies both *hard skills* and *soft skills.* The demand for hard skill competencies that is produced by the VHS as a provider of skillful workforces for construction have been formulized in the curriculum particularly in the group of productive and adaptive education and training subjects, while the soft skill competencies relevant to the learners' knowledge and skills has not been formulized in a clear manner in the curriculum. To formulize the *soft skills* in the VHS curriculum and to adapt them to the construction requirements, an analysis of soft skill competencies in the construction service is necessary.

The Meyer Key Competencies form the basis of the concept of generic competencies used in this paper. The project takes an integrated approach to competence. This means competence is thought of in general terms of knowledge, abilities, skills and attitudes. The narrow task-based approach to competency is not the focus here. We draw on the generic competencies set out in the reports by the Finn, (1991) and Mayer (1992a & b) as follows: (a) collecting, analyzing and organizing information, (b) communicating ideas and information, (c) planning and organizing activities, (d) working with others and in teams, (e) using mathematical ideas and techniques, (f) solving problems, (g) using technology, and (h) using cultural

understandings. Points (a) to (g) are the key competencies and adopted by SKKNI as the key competency criteria that constitute the requirements to be fulfilled by a person to achieve the required performance in the task implementation in a certain competency unit.

In the construction of a physical facility, the characteristics of the production process of construction service work are known as a hierarchy of construction scope that is used to make the division of authorities and resources in planning, implementation and control. A work team who come to the location where a project will be constructed always implements the work of construction service. A work team with such special task will leave a half-finished product of his resulting task to another work team that will then continue on completing the project. Every work team remains contribute to the component addition or to the quality of end product. This process of production is called *'Parade of Trades*' (Abduh: 2007). In this parade, it seems that a team will provide the next work team with a work place. If this work place does not exist, since the previous team has not been completing it in conducting its work, then the next team cannot undertake its duty. This condition is an *idle* or a pending activity, so it is time wasting. If this process of construction repeats, it is possible to count how many idles for each work team. It is necessary to consider that all construction service works are tied to time target and to limited resources. The more idles, the greater its impact on the resource increment for the completion of the project.

With the actual description of the characteristics of the production process of the construction service and the generic competencies as mentioned above, it may be said that the success of a work is largely determined by the soft skill competencies identified as the competency criteria to be acquired by the workers on the construction service work in order for them to completing their works in a proper way. The identification of soft skill attributes relevant to the construction service work includes: (1) communication skills, (2) cooperation in the team work, (3) work ethics, (4) honesty, and (5) ability to work under time pressure.

C. The Characteristics of the Vocational High School Curriculum

The vocational school aims at increasing the learners' aptitude, knowledge, personality, mentality, and skills to enable them to live a self-reliance life and attend the advanced education according to their individual vocational program. To achieve this

target, the curriculum should be designed to facilitate the learners to learn in an effective and efficient way, be able to develop their skills and specialties in line with the requirements of work world, and acquire the capacity for self-improvement.

The basic characteristics of the vocational curriculum according to Finch (1979) are as follows: (1) the orientation of the vocational school curriculum to the output, (2) The curriculum development to the external activities and the local people on the basis of work world fulfillment, (3) focus on the extensive development of knowledge, skills, attitude, and value that give useful contribution to the work capacity of the graduates, (4) In-School success standards are closely related to the expected performance at work place, (5) out-school success standards orients to the graduate outcome after working, (6) School-community relationship, where the vocational school curriculum should be responsive to the society needs, (7) government involvement in the vocational school is manifested in its role in developing, monitoring, guiding, and standardizing the national graduation, (8) the curriculum should be responsive to the changing technology in society and changing work world, (9) the provision of facilities and infrastructures and the proper learning sources in the implementation of the vocational school curriculum, (10) expenditures needed for the implementation of the vocational school curriculum are considerably large, including the costs for the process of learning-teaching in the classroom, laboratory practice/workshop job, equipment usage, maintenance, and equipment improving process. The basic characteristics of the vocational school curriculum are references in developing a curriculum responsive to the dynamic of work competency requirements especially in the construction service industry. The integration of soft skill competencies in the VHS curriculum is one form of curriculum development responsive to the requirements of workforce competencies at work place.

The structure of the vocational school curriculum, in this case that of the VHS is targeted to achieving the objectives of the vocational program. The VHS curriculum contains compulsory subjects, vocational subjects, local contents, and self-development. The subjects in the structure are divided into three groups including normative, adaptive, and productive. The normative group of subjects is the lessons that are allocated permanently, whereas the adaptive and productive ones are subjects allocated in line with the specialty program requirements, and may be conducted in time block or other alternatives. The learning subjects in the productive group involving basic vocational competency and vocational competency are adjusted to the requirements of

the specialty program to meet the competency standards of work place (Regulation of National Education Minister No. 22; 2006). Viewed from the characteristics and structure of the vocational school curriculum, the soft skill can be integrated in the curriculum development in the groups of adaptive and productive subjects.

D. Integration of Soft Skills in the Vocational High School Curriculum

Integration of soft skills in the vocational school curriculum, especially in the groups of adaptive and productive subjects, is part of curriculum development. The current curriculum implemented in the VHS is *Kurikulum Tingkat Satuan Pendidikan* (KTSP) that is an advancement of the previous curriculum of 2004. The *KTSP* development of the vocational school is done by the school and school committee based upon the graduate competency standards and content standards and guidelines of curriculum development made by Bureau of National Education Standardization (*Badan Standarisasi Nasional Pendidikan/*BSNP). The curriculum is developed in accordance with the following principles: (1) centered on the potential, improvement, needs, and interests of the learners and their environment, (2) varied and integrated, (3) responsive to the advancement of science, technology and arts, (4) relevant to the life needs, (5) comprehensive and sustainable, (6) long-life education, and (7) balance between national and local interests (Regulation of National Education Minister No. 22; 2007).

The KTSP curriculum already developed in the VHS is a competency-based curriculum (CBC). In this concept CBC, a subject may contain various subject matters that are closely related one to another and needed to be integrated for learning effectiveness. It means that one subject matter may be understood in a certain context. For example, in learning the Stone and Concrete specialty competency, the honesty subject matter may be combined with the practical matter of stone installation. From the learning process perspective, KBK adopts *Student Centered Learning* (SCL) model that is a learning process actively involving the students in constructing science along with the teachers or instructors as facilitators. The emphasis of such learning process is not only on the theoretical aspects but also on the work under process. Considering the existing KTSP and the learning process of SCL at the Vocational High School, the integration of soft skill competencies into the curriculum is then implemented by inserting into each subject matter the adaptive and productive subjects.

The steps in integrating the soft skill competencies in the vocational school curriculum are described as follows:

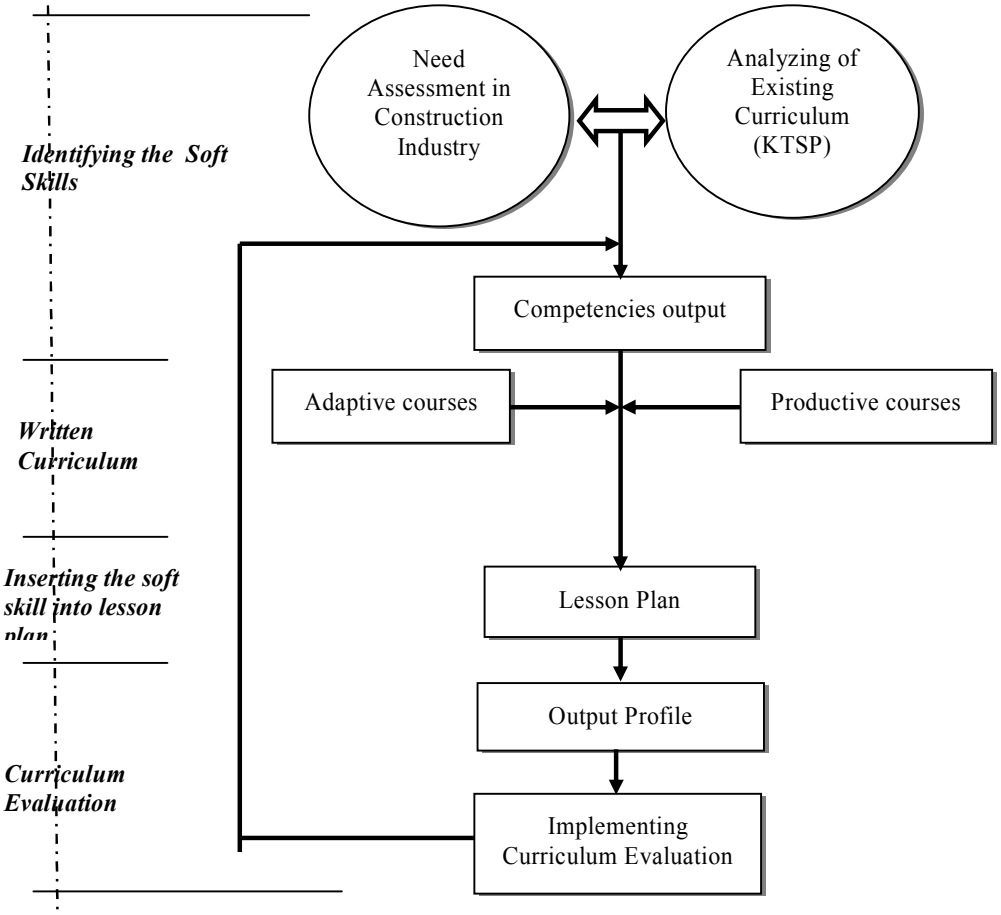

Figure 1. *Steps of Integration of Soft Skills into Vocational Curriculum*

Integration of the soft skills in the vocational education curriculum especially in the field of Civil Engineering is grouped into four steps of activities including (1) identifying the soft skills competencies, in detail the activities in this steps are; (a) need assessment or market signal of the *soft skill* competencies in the construction industries, (b) analyzing of the soft skill conditions in the existing curriculum (KTSP), (c) defining and synchronizing the graduate competencies predetermined and adapted to the needs of work force, (2) written curriculum**,** integrating the soft skills into the written as well as "hidden" curriculum (3) deriving the soft skills from the curriculum and inserting the soft skills attributes into the lesson plans to be carried out in the teaching-learning process, and (4) curriculum evaluation**,** evaluating the curriculum implementation gradually using a certain measure, particularly to asses students' achievement of the integrated soft skill.

E. Conclusion

The success in work, especially in the construction service industry, is not merely determined by the capacity in mastering knowledge and technology in the construction field (*hard skills*), but also by the soft skill competencies of the worker that encompasses a person's skill in self-management (interpersonal skills) and in developing relationship with others (interpersonal skills). The characteristics of the production process of the construction service industry called *'Parade of Trades"* require the workers with the soft skill competencies to reach success in implementing their jobs. The formation of the soft skills competencies at the VHS of Architectural Engineering study program is very important to fulfill the requirements of the construction service industry.

Integration of the soft skills into the curriculum of the VHS of Architectural Engineering study program is an effort to meet the demands for the skillful workforces at the construction service industry. The steps in integrating the soft skills into the curriculum include: (1) Identifying of soft skills, (2) written curriculum, integrating the soft skills into the written as well as "hidden" curriculum , (3) deriving the soft skills from the curriculum and inserting the soft skills attributes into the lesson plans , and (4) curriculum evaluation, evaluating the curriculum implementation gradually using a certain measure, particularly to asses students' achievement of the integrated soft skill.

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VET CURRICULUM, TEACHING, AND LEARNING FOR FUTURE SKILLS REQUIREMENTS

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Abstract

VET curriculum, teaching and learning should be adaptive to the conditions and needs of the new world of work, anticipative the future skills requirements, needs of learners as the whole person for personal fulfilment and preparation for life. VET curriculum, teaching and learning should be pay attention to the trend of future world of work, globalization, localization, individualization to make people (self-) employable and to be a vehicle of transition for individuals to the world of work. VET leads to (self-) employment and income generation which is expected to contribute to the individuals' and their communities' well-being. VET implies the adoption of a holistic approach to skills development for employability and citizenship by placing emphasis within skills training programs on developing a basic skills, thinking skills, personal qualities, generic work skills, and specific skills to prepare the learner for self-reliance and responsible citizenship.

Keywords: VET, curriculum, teaching, learning, skill

A. Introduction

Fast-changing world of work because of the influence of information and communication technology, labor requirements and the desired characteristics are not easy to predict (Rojewski, 2009; Boutin, Chinien, Moratis, & Baalen, 2009). The international transformation towards a knowledge-driven economy, the strong demands for societal developments, and the international and regional competitions have driven numerous education changes in different parts of the world (Cheng, 2005). It has occured increasing openness, flexibility, complexity, and uncertainy in industrialized societies (Tessaring, 2009; Heinz, 2009; Billet, 2009; Wagner, 2008). While vocational education and training (VET) curriculum must always adapt to the conditions and needs of the working world. In principle, VET should accommodate all the needs of both the physical needs of learners, non-physical, and moral as well as their future needs to be able to live comfortably and afford to live in society with happy as the whole person (Rojewski, 2009). Dewey believed that the principle goal of public education was to

meet individual needs for personal fulfilment and preparation for life (Rojewski, 2009). Any effective work-based learning system must meet the needs of the learners it serves (Hiniker & Putnam, 2009). What are their needs likely to be? What resources will be needed? What challenges must be met to prepare the workforce of the future for the workplace of the future? How VET should be responsive to the trend and challenges of globalization, localization, and individualization? How curriculum, instruction, and learning was developed to respond to these challenges? Acording Tessaring (2009), curriculum development requires search for skill and qualification that are 'fit for the future'. How we can be designed and implemented in curricula and education/training routes. How explaining the general purposes of VET, reflecting the underlaying beliefs and perspectives of constituents, and shaping current activity and future direction? (Rojewski, 2009).

B. Skill and Qualification For the Future

Functionally VET demanded to equip workers and prospective workers with various skills so that they can complete tasks in a job with a better and true (Gill, Dar, & Fluitman, 2000). Acording Billet (2009) trend of the future world of work are: (1) non-routine; (2) specialized and diverse; (3) intense; (4) conceptual; (5) discretionary; (6) complex; and (7) based on interactions with others, tools and artefacts. Moving between old world of class rooms and new world of work, there is a core set of survival skills for today's workplace, as well as for lifelong learning and active citizenship (Wagner, 2008). New world of work require seven survival skill (Wagner, 2008) namely: (1) critical thinking and problem solving; (2) collaboration across networks and leading by influence; (3) agility and adaptability; (4) initiative and entrepreneurialism; (5) efective oral and written communication; (6) accessing and analyzing information; (7) curiosity and imagination. We want to develop a new generation of leaders to lead the community in context of complicated technological, economic, social, political, and cultural environments (Cheng, 2005).

Acording Stern (2003), besides special skills, good workers must have good fundamental skills and generic work skills. Fundamental skill consists of: (1) basic skills; (2) thinking skills; and (3) personal qualities. Basic skills include the skills to listening, reading, writing, speaking, and math. Thinking skills include how to learn, how to create and solve problems, and decision making. The third fundamental skills is

the personal qualities in the form of responsibility, self-integrity, self-confidence, moral, character, and loyalty (Stern, 2005). Theoretically, a good fundamental skills will support career development person. Stern also suggested the importance of generic work skills such as how to use resources, processing information, using technology, understanding the system, in cooperation with others, and work on teams. DeSeCo defined within three-fold categorization and the following nine key competencies as basic skills, life skills, or core competencies and particularly relevant for all individual in Organisation for Economic Co-operation and Development (OECD) countries: (1) Interacting in socially heterogeneous groups covered the ability to relate well to others, the ability to co-operate, and the ability to manage and resolve conflict; (2) Acting autonomously covered the ability to act within the 'big picture', the ability to form and conduct life plans and personal projects, the ability to defend and assert one'srights, interests, limits and needs; (3) Using tools interactively covered the ability to used languange, symbols, and text interactively, the ability to used knowledge and information interactively, and the ability to use new technology interactively (Rychen, 2009).

Fundamental skills become the foundation of a person's career development in employment. VET curriculum development, teaching and learning should get enough portion of the fundamental skills. Fundamental skill is a common skills. On top of fundamental skills, there are generic work skills, industry-specific skills, and company/employer specific skills such as Figure 1. Structure development of vocational education and training skills model from Stern (2003) is more structured than the Wagner model (2008).

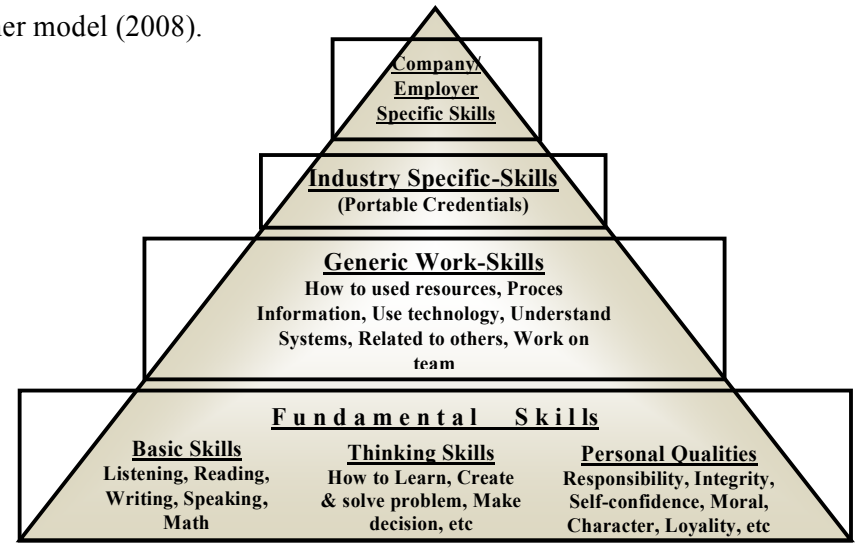

Figure 1. Structure development of vocational education and training skills

Source: Dr. Barry Stern, 2003.

C. General Purposes Of VET

The purpose of VET is to make people (self-)employable and to be a vehicle of transition for individuals to the world of work. Thus, in the ideal case, VET leads to (self-)employment and income generation which is expected to contribute to the individuals' and their communities' well-being (Hollander & Mar, 2009). VET is concerned with the acquisition of knowledge and skills for the world of work. VET is used as a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related sciences, and the acquisition of fundamental skills, generic work skills, practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (Emmerik, Bekker, & Euwema, 2009; Kellet, Humphrey, & Sleeth, 2009; Stumpf, 2009). VET is further understood to be: (1) an integral part of general education; (2) a means of preparing for occupational fields and for effective participation in the world of work; (3) an aspect of lifelong learning and a preparation for responsible citizenship; (4) an instrument for promoting environmentally sound sustainable development; (5) a method of facilitating poverty alleviation (Hollander & Mar, 2009: p. 41).

For VET to effectively contribute to (self-)employment and poverty alleviation, there needs to be a labour market which can absorb the VET graduates and provide them with decent work and an income that allows them to live. In view of this, the purpose of VET must permit a concentration not only on poverty alleviation but also on (self-)employment (Hollander & Mar, 2009: p. 42-43). UNESCO sees the role of VET as educating the whole person, not just the worker. This implies the adoption of a 'holistic approach to skills development for employability and citizenship by placing emphasis within skills training programmes on developing a sense of values, ethics and attitudes to prepare the learner for self-reliance and responsible citizenship' (Quisumbing & de Leo, 2005; Emmerik, Bekker, & Euwema, 2009; Kellet, Humphrey, & Sleeth, 2009; Stumpf, 2009).

D. Vet Curriculum

VET future effectiveness assurance refers to the efforts to ensure the relevan aims, content, practices, and outcomes of education to the future of new generations in

new era. The aim of new curriculum should be develop students with multiple development in technological, economic, social, political, cultural, and learning aspect (Cheng, 2005). The design VET curriculum is based on characteristics of technological, economic, social, political, cultural, and learning aspect and maximizing development oportunities for student' individualized, localized, and globalized learning. The curriculum structure is often hybrid, integrative, common core of workforce education for all, and interactive with the support of ICT, networking, local and global exposure, and field experience and virtual reality, to meet the diverse needs of students and the society in the future development. The VET curriculum content includes fundamental skills, generic work skills, life skills, or core competencies, and specific skills.

The curriculum content is relevan to the globalization of technology, economy, social development, political development, culture, and learning. The curriculum also includes local resources, material, and concerns to ensure the local relevance and community involvement for maximizing opportunities for student' localized learning. Community-based curriculum is one typical practice to increase the local relevan and support in the field. The curriculum design and content are flexible and adaptable and can be individualized—in terms of learning targets, content, methods, and schedules—to meet the developmental needs of individual students, facilitate their self-learning and self-actualization, and optimize their potentials as leaders and citizens (Cheng, 2005, Rauner, 2009, Spottl, 2009).

E. Vet Teaching Learning

In the new paradigm, the future world of work is assumed to be in multiple globalizations including learning, cultural, social, economic, political, and technological globalizations. The world of work is moving very fast to become a global village, in which various parts and countries are rapidly networked and globalized through internet and different types of IT, communications, and transportations (Cheng, 2005). Acording Cheng (2005) in the new paradigm, the human nature in a complicated context is assumed to be multiple, as a technological person, economic person, social person, political person, cultural person, and learning person in a global village of information, high technology, and multi-cultures. Both individuals and the society need multiple developments in the technological, economic, social, political, cultural, and learning aspects. Lifelong learning and a knowledge-based society are necessary to sustain the

continuous multiple developments of individuals and the society in a fast changing era (Cheng, 2005).

Teaching is considered a process to initiate, facilitate, and sustain students' self learning, self-exploration and self–actualization. Therefore, teachers should play a role as facilitators or mentors who support students' learning. The focus of teaching is to arouse students' curiosity and motivation to think, act, learn to listen, learn to read, learn to write, learn to speak, learn how to learn, solve problem, how to use resources, process information, interacting in socially heterogeneous groups, acting autonomously, and using tools interactively. Also, teaching is to share with students the joy of the learning process and outcomes. To teachers themselves, teaching is also a lifelong learning process involving continuous discovery, experimenting, self-actualization, reflection, and professional development.

Student is the centre of education. Students' learning should be facilitated to meet their needs and personal characteristics, and develop their potentials in an optimal way. Students can be self-motivated and self-learning with appropriate guidance and facilitation, and learning is a self-actualizing, discovering, experiencing, and reflecting process. The focus of learning is on learning how to learn, research, think, and create. Students' learning should be facilitated in a way such that local and global resources, support, and networks can be brought in to maximize the opportunities for their developments during learning process.

Through localization and globalization, there are multiple sources of learning. Students can learn from multiple sources inside and outside their education institutions, locally and globally, not limited to a small number of teachers in the institutions. Participation in local and international learning programs can help them achieve the related community and global outlook and experiences beyond education institutions. They will be grouped and networked locally and internationally. Learning groups and networks will become a major driving force to sustain the learning climate and multiply the learning effects through mutual sharing and inspiring. We can expect that each student can have a group of lifelong partner students in different corners of the world to share their learning experiences. It is expected that learning happens everywhere and is lifelong.

Education is just the preparation for a high level lifelong learning and discovery (Cheng, 2005). Learning opportunities are unlimited. Students can maximize the opportunities for their learning from local and global exposures through Internet, web-based learning, video-conferencing, cross-cultural sharing, and different types of interactive and multi-media materials (Ryan, Scott, Freeman, & Patel, 2000; Education and Manpower Bureau, 1998). Students can learn from world-class teachers, experts, peers, and learning materials from different parts of the world. In other words, their learning can be a world-class learning.

The new paradigm emphasizes that teaching should be facilitated in such a way that local and global resources, supports and networks can be brought in to maximize the opportunities for teachers' developments in teaching and for their contribution to students' learning. Students' learning should be facilitated in a way such that local and global resources, support, and networks can be brought in to maximize the opportunities for their developments during learning process. Through localization and globalization, there are multiple sources of learning. Students can learn from multiple sources inside and outside their education institutions, locally and globally, not limited to a small number of teachers in the institutions. Table 1 show a new paradigm of teaching and learning in future world of work.

Table 1: New Paradigm of Teaching and Learning in Future World of Work

New Paradigm of Teaching	New Paradigm of Learning
✓ Teacher is the Facilitator or Mentor to support Students' Learning ✓ Individualized Teaching Style ✓ Arousing Curiosity ✓ Facilitating Process ✓ Sharing Joy ✓ As Lifelong Learning ✓ Multiple Sources of Teaching ✓ Networked Teaching ✓ World-Class Teaching ✓ Unlimited Opportunities ✓ Local and International Outlook ✓ As World-Class and Networked Teacher	• Student is the Centre of Education • Individualized Programs • Self-Learning • Self-Actualizing Process • Focus on How to Learn • Self Rewarding • Multiple Sources of Learning • Networked Learning • Lifelong and Everywhere • Unlimited Opportunities • World-Class Learning • Local and International Outlook

Source: Cheng, 2005

Different roles teachers play in the teaching process may shape the roles and qualities of students in the learning process that can vary from the very passive way to the active self-learning and self-actualization mode along a spectrum as shown in Table 2 and Figure 1 (Weaver, 1970; Cheng, 2001, Cheng 2005). According to this spectrum, to what role a teacher should change in the new paradigm of education? As shown in Figure 1, there is an ecological relationship between roles of teachers and students. If teachers tend to use more teacher-direct-instruction or be more teacher-centred in teaching (towards roles 8, 9, and 10 as in Table 2), students become more passive in their learning and the qualities they achieve tend to be Habits, Possession of Information and Skills. If teachers tend to use student centred approaches and play roles 1, 2, 3, 4, 5 and 6 in the teaching process, students have more opportunities to be active in self-learning and achieve higher qualities of learning outcomes such as Self-Determination, Responsibility, Creativeness, Adventurousness, Investigation Skill, and Understanding that are important in the new paradigm of education and also crucial to the future of students in the new century.

Table 2: Teachers' Roles and Corresponding Students' Roles and Outcomes

Teacher's Roles	Teaching/ Learning Process	Student's Roles	Likely Student Quality as Outcomes
1. Appreciator **2. Partner** **3. Patron** **4. Guide** **5. Questioner** **6. Tutor** **7. Counsellor** **8. Moulder** **9. Instructor** **10.Exemplar**	As determined by students Participation Making Searching Experimentation Reflection Expression of feeling Conditioning Transfer of information Imitation	**1. Searcher** **2. Partner** **3. Designer** **4. Explorer** **5. Searcher** **6. Thinker** **7. Client** **8. Subject** **9. Memorizer** **10. Trainee**	Self-Determination Responsibility Creativeness Adventurousness Investigation Skill Understanding Insight Habits Possession of information Skills

Source: Cheng, 2005

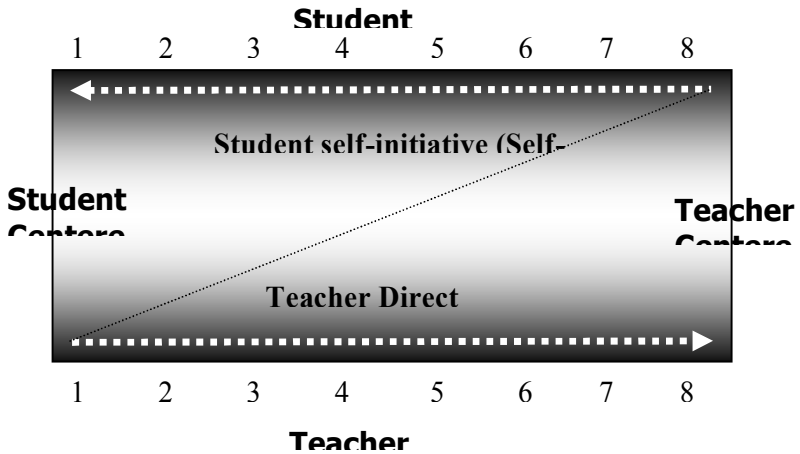

Figure 1: The Ecological Relationship between Roles of Teachers and Students

F. Conclusion

VET is educating the whole person, not just as worker. VET must permit a concentration not only on poverty alleviation but also on (self-)employment. The aim of new curriculum should be develop students with multiple development in technological, economic, social, political, cultural, and learning aspect (Cheng, 2005). The design VET curriculum is based on characteristics of technological, economic, social, political, cultural, and learning aspect and maximizing development oportunities for student' individualized, localized, and globalized learning. The curriculum content is relevan to the globalization of technology, economy, social development, political development, culture, and learning.

The focus of teaching is to arouse students' curiosity and motivation to think, act, learn to listen, learn to read, learn to write, learn to speak, learn how to learn, solve problem, how to use resources, process information, interacting in socially heterogeneous groups, acting autonomously, and using tools interactively. Students' learning should be facilitated to meet their needs and personal characteristics, and develop their potentials in an optimal way. Students can be self-motivated and self-learning with appropriate guidance and facilitation, and learning is a self-actualizing, discovering, experiencing, and reflecting process. The new paradigm emphasizes that teaching should be facilitated in such a way that local and global resources, supports and networks can be brought in to maximize the opportunities for teachers' developments in teaching and for their contribution to students' learning. Students' learning should be facilitated in a way such that local and global resources, support, and

networks can be brought in to maximize the opportunities for their developments during learning process.

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THE TEACHING STRATEGIES IN VOCATIONAL EDUCATION IN THE KNOWLEDGE ERA

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Abstract

This paper was arranged to describe the challenge of the teaching strategies in vocational education in the knowledge era. One of the eras that will be meet in the twenty-first century is the knowledge era. In the knowledge era, knowledge is the engine of creativity and culture and defines our humanity, and also the main resource in any economic activity.

Sekolah Menengah Kejuruan (Vocational Secondary High School) that one of components of vocational education in Indonesia is faced to improve its quality education and to adapt to the changing in the knowledge era. Teaching strategies are one of the components in a schooling scope that should be considered an alternative solution to improve the education quality, and also to accommodate to a change of knowledge in the knowledge era.

The constructivism and social-constructivism learning approach, and the five elements of the strategic learning model: plugging in, powering up, synthesizing, outsourcing, and reflecting can be considered as part of the teaching strategies in implementing instructional in the knowledge era. Nevertheless, enriching a teacher's competencies in teaching strategies and other competencies that related to a workforce in the future is needed indeed through professional development activity.

Keywords: teaching strategy, vocational education, professional development.

A. Introduction

The rapid scientific and technological development has impacted to every region distance will be relatively closed among nations in the world. Rapid technological change makes skills obsolete very quickly and requires higher levels of innovation. In the early twenty-first century, it has been rapidly growing an information age or a digital age, which then gradually will shift into a knowledge era. In this knowledge era, knowledge is the main resource in any economic activity. Therefore, the information and communication technologies are dramatically changing the way people in many aspects of the world live. In the other hand, according to Power (2000: 30) while globalization has increased economic growth in some countries, it has also demanded heightened competitiveness. The basic challenge of the globalized economy is therefore the requirement to adjust and compete in a rapidly changing environment. So that, central to the effort to compete in knowledge era is the creation of a productive, innovation, and flexible workforce.

Because of the globalization, new problems will have appeared in knowledge society, one of them such as the gap between the science and technological progress and the education system. Vocational education is one of the component of education most directly concerned with the acquisition of the knowledge and skills that required by workplace. Power (2000: 30) stated that vocational education of the twenty-first century must be gear to the demands of the 'knowledge society'. Refer to the education system structure of Indonesia, the term of vocational education has spitted into two meanings, i.e. in higher education level and in secondary education level. The vocational education in higher education levels are usually conducted at a universities or a polytechnics, whereas the vocational education in secondary education levels are implemented at school that known as 'Sekolah Menengah Kejuruan (SMK)' (Vocational Secondary High School - VSHS). Briefly, the aim of VSHS is to prepare graduates to fulfill a workplace. In the further discussion in this paper, the term usage of vocational education means a vocational secondary high school.

The quality education can only be achieved if the education process at school makes students really learn as much as possible. The quality education must be seen from the students' ability to learn independently. Improving the quality of education is determined by the readiness of human resources that involved in the education process. Teacher, 'guru' in Indonesia term, is one of the determinant factors that will achieve in a high or low quality in educational outcomes. Teachers have a strategic position in any attempts to improve the quality of education, so that should give great attention to the improvement of teachers both in terms of both quantity and quality.

For many years, teaching is considered as an effort to provide information or attempt to demonstrate how to use something, or to give lessons through this particular subject. Teaching activities can be illustrated such as a selling and buying activities, it means that need 'strategy' to clutch the successfulness in his or her transaction. In the knowledge era, the old teaching strategies must be considered to be adapted to the new context of schooling that related to the changing of technology and a workforce setting.

B. The challenge for Vocational Education in the Knowledge Era

Before further discussing related to the challenge for vocational education in the knowledge era, it's better that known well what knowledge and its effect to education are. According to Sallis and Jones (2002:8), knowledge is at the heart of human civilization. It is the engine of creativity and culture and defines our humanity. As consequence, knowledge represents a great deal more than information. Knowledge is information in use, and it is the interaction of information with the human mind that gives it meaning and purpose. Information can only become knowledge when people apply their intellect to it, and interpret it. Information become knowledge when it is believed, understood, and applied. A knowledgeable person uses his or her intellect to make sense of information and, from it, develop new thinking, ideas and concepts and makes them work in new, creative and innovative ways. Thus, knowledge is an integral part of the complex learning processes of all human beings.

Above statement can be inferred that the impact of knowledge to vocational education is relevant in the knowledge era. To be able to enter employment in the knowledge era within many challenges, the ability to maintain viability or survive is indispensable for workers. Wagner (2008: 14-42) has announced the seven survival skills in the face of the New World of Work in the twenty-first century: (1) critical thinking and problem solving, (2) across collaboration networks and leading by influence, (3) agility and adaptability, (4) initiative and entrepreneurialism, (5) effective

oral communication, written and, (6) accessing and analyzing of information, and (7) curiosity and imagination. Briefly, according to Wagner (2008:38) the survival skills are to optimize "left-brain skills" which include critical thinking and problem solving, accessing and evaluating information, and also "right brain skills" which include curiosity, imagination, and creativity.

Another problem that will appear is how to overcome gaps in skills that are expected to work and a possessed skill of a candidate worker. To overcome those of problems of skills gaps, according to Robinson (2000) requires a job readiness skills or known as employability skills. Furthermore, refer to Robinson (2000), employability skills are those basic skills necessary for getting, keeping, and doing well on a job. Employability skills can be grouped into three types of skills, i.e.: basic academic skills, higher-order thinking skills, and personal qualities. Employability skills that mentioned above are teachable skills may be taught in both in school and in employment setting. Above statements are correlated to Power (1999: 30) statements that, in the twenty-first century, vocational education is expected to help students achieve competencies based on fundamental skills such as mathematics, foreign languages and computer literacy, thinking skills such as creativity, problem-solving and decision-making; and personal skills such as sociability, self-esteem, self-reliance, self-management and integrity.

Furthermore, to make relevant between vocational education and workforce market, Pavlova (2009: 45-63) offered a new approach for vocational education in the future that known as 'education for sustainable development'. Education for sustainable development in terms of improving the quality of human life within earth's carrying capacity and conservation of the earth's vitality and diversity, that usage three pillars or perspectives: socio-cultural, environmental, and economic. Of all those statements can be concluded that restructuring of vocational education system is needed to produce what expected to be the vocational education graduate relevant to the required competencies and the workforce demand in the knowledge era.

C. The Teaching Strategies in the Vocational Education in Knowledge Era

As we know that teaching can be viewed as a profession and also as a science and art. As Orlich, *et.al* (2007: 12) stated that teaching is a profession with own body of knowledge, techniques, internal organization, and code of ethics, and as a science because it requires knowledge of techniques, and also as an art because it requires decision making. Teaching can't be separated from schooling context. Orlich, et.al (2007: 9-11) has classified key context of schooling into four region, including social context, emotional context, educational context, and collegial context. It means that schooling can also be influenced by another context, especially changes of technology that caused a changing era.

In the vocational education, educational process should be linked and matched to a technology change and a workforce change. Arends (2004:8-17) stated that there are seven teaching challenges in the twenty-first century, i.e.: teaching in a multicultural society, teaching for the construction of meaning, teaching for active learning, teaching and technology, teaching with new views about abilities, teaching and choice, and teaching and accountability. Generally, teaching in a multicultural society is faced to the demography factors. In Indonesian context, the demography trends have significance for teaching and for those preparing to teach in at least three important ways: poverty, social and economy, and racial and ethic. As we know that Indonesia has diversity with

thousands island and hundreds cultures, it means that Indonesia is the country with multicultural society.

By teaching for the construction of meaning, the education system must be shifted from a traditional view to a constructivist perspective. Traditionally, the vocational education system is based on a factory model of schooling. Schools, like the factories, were places where instruction or tasks could be standardized and teachers could pass on information to their students in the form of known an "truths". Teachers role were to transmit that knowledge in the form of facts, concepts, and principles to students. In a constructivist perspective, learning is a social and cultural activity that knowledge is somewhat personal, and that learners construct meaning through interaction with others. Traditionally, the system of schooling rested on a perspective that learning was a passive activity. Learning from a constructivist perspective is viewed as students actively engaging in relevant experiences and having opportunities for dialogue, so that the meaning can evolve and be constructed.

The result of learning can't be measure from human intelligence only. New views of abilities that should be consider by teachers in their teaching and learning process are emotional intelligence and spiritual intelligence. A choosing of a private schools or a public school is still a dilemma for a student's parent to select an appropriate school for their children. In the other hand, there is a stigma that private schools are better than public schools in implementing of teaching and learning process. In the future, teachers must be accountable. They should be held accountable for using best practice throughout a professional development and their career.

Above statements can be concluded that teaching can't be separated from the technology change. Integrating technology into classroom instruction is a pursuit to teachers in adapting their skills with the changing era. As be stated Pisapia (1994) who be quoted by Williams (2000: 12) that integrating technology with teaching means the use of learning technologies to introduce, reinforce, supplement and extend skills. Unfortunately, there is misconception about the use of integrating technology in schools. According to Williams (2000: 15) teachers will become redundant, their teaching functions largely replaced by sophisticated 'teaching machines', but actually teachers who integrate integrating technology into their instruction have important roles to play at all stage of the lesson process.

According to Hsu, et.al (2000: 71-91), in order to integrate instructional technology into curriculum meaningful, it is important for teachers to know what are predominant learning theories and how such as computer applications can be integrated in relation to learning theories. Furthermore, Hsu stated that there are four major models of learning have dominated educational psychology, i.e. behaviorism, cognitivism, constructivism, and social-constructivism. In behaviorism and cognitivism approach assume that learning can be taken place when the knowledge is transmitted to learners. When a computer is utilized in integration instructional technology, under both approaches, the role of the computer is to act as a sort of tutor. In this activity, a teacher's role is performed to present information and to provide a controlled learning environment. Unlike both of the learning approach above, according to Chen, *et.al* (2000: 187), in views of constructivism and social-constructivism approach, a computer in teaching and learning process can play a significant role in either being used as a tool or providing access to instructional materials. Furthermore, Chen (2000: 187) stated that in constructivism and social-constructivism approach, the teacher's role is a guide, a facilitator, a coach to assist students to model learning using various strategies and to inspire students in playing with ideas and manipulating information that they have

gathered. Of all those statements can be inferred that constructivism and social-constructivism learning approach can be selected appropriately as part of teaching strategies in implementing instructional in the knowledge era.

According to Tileston (2007: 4) teaching for long-term memory is critical. To help students learn and remember as well as factors that prevent understanding and retention, a teacher should plan a teaching strategies as well as a strategic learning model that appropriate to students. Tileston (2007: 5-33) offers the five elements of the strategic learning model for today's learns: plugging in, powering up, synthesizing, outsourcing, and reflecting. Plugging is about creating the kind of enviroment that raises the comfort level of students. Powering up means the point in the lesson when a teacher pull students into the learning by tapping into what they already know and by creating a hook to the new learning. Synthesizing is a learning declarative information from multiple sources and integrating it so that it meaningful and useful to the students. Outsourcing is the place in the lesson where students use information that they have learned in meaningful way. Reflections represents the part of lesson in which students are given the opportunity to think about the learning, to examine, to relate it to their world and to self-evaluate. Of course, to implement all of those elements, the teacher's role in strategic-learning classroom is the key to make learning process meaningful.

Teaching as a profession for teachers must be improved their knowledge and skills quality in order to adapt to technological change. One of alternatives to improve the teacher's professionalism can be conducted through a professional development activities. According to Diaz-Maggioli (2004:5), the vision of professional development is grounded in faith in teachers, the institutions they work for, and the power of broader community of educators around the country and the globe. Effective professional development should be understood as a job-embedded commitment that teacher make in order to further the purpose of the profession while addressing their own particular need. It should follow the principles that guide the learning practices of experienced adult, in teaching communities that foster cooperation and shared expertise. Diaz-Maggioli summarized visionary professional development in contrast to more traditional practices as follows.

Characteristics of Traditional Professional Development	Characteristics of Visionary Professional Development
• Top-down decision-making	• Collaborative decision-making
• A "fix-it" approach	• A growth-driven approach
• Lack of program ownership among teachers	• Collective contraction of programs
• Prescriptive ideas	• Inquiry-based ideas
• One-size-fits-all techniques	• Tailor-made techniques
• Fixed and untimely delivery methods	• Varied and timely delivery methods
• Little or no follow-up	• Adequate support systems
• Decontextualized programs	• Context-specific programs
• Lack of proper evaluation	• Proactive assessment
• Pedagogical (child-centered) instruction	• Andragogical (adult-centered) instruction

The above statements can be stated that the professional development is required for teachers to improve their pedagogic knowledge and subject matter based on standards requirements.The results of the professional development of teachers are expected to improve their the teaching quality and strategy.

D. Conclusion

Vocational education is one of the component of education most directly concerned with the acquisition of the knowledge and skills that required by workplace. In the twenty-first century, one of the era that will meet is the knowledge era. Consequences that will occur in the knowledge era is going to emerge a variety of a skills demand, such as survival skills and employability skills needed by workplace. Furthermore, to make relevant between vocational education and workforce market, education for sustainable development (ESD) is one of educational approach that can be offered to restructure a new paradigm for vocational education, especially VSHS, in the future. Teacher is one of the determinant factors that will achieve in a high or low quality in educational outcomes.

The teaching is a profession and also as a science and art. There are seven teaching challenges in the twenty-first century: teaching in a multicultural society, teaching for the construction of meaning, teaching for active learning, teaching and technology, teaching with new views about abilities, teaching and choice, and teaching and accountability. Therefore, choosing appropriate teaching strategies is needed indeed, so that the learning process can adapt to the new context of schooling that related to the changing of technology and a workforce setting.

Integrating technology into classroom instruction is a pursuit to teachers in adapting their skills with the changing era. The constructivism and social-constructivism learning approach can still be selected appropriately as part of teaching strategies in implementing instructional in the knowledge era. The teachers can implement in their teaching strategies by considering the five elements of the strategic learning model: plugging in, powering up, synthesizing, outsourcing, and reflecting. But then, all of these agendas cannot be achieved when the quality of teachers' knowledge and skills are not upgraded in accordance with the change of era. One of alternatives to improve the teacher's professionalism can be conducted through professional development activities.

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THE DEVELOPMENT OF A MODUL FOR COMPUTER AIDED CONTEXTUAL-CONTRUCTIVISM LEARNING IN THE SUBJECT OF MACHINING

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Abstract

This research is aiming at finding out a more appropriate learning model for students. The so called learning model is electronic modul aided contructivistics learning in the subject of Machining which is validated theoretically and empirically.

It was a development of a prior research that has successfully designed, built and validated a learning model using an Electronic Modul (interactive compact disc) and its equipment. This further research had been focused at application, wider scope model validation and its effectivity, as well. It was conducted by Research and Development approach. The data was analyzed descriptively.

The results showed that the electronic modul development needs some stages: introduction study, model formulation, validation, limited test, wider test, revision and final product formulation. Based on the data, it could be concluded that the electronic modul built had been satisfied both theoretically and empirically feasibility aspects. There were three learning implementation patterns using electronic modul, those were: 1. As a showing media, 2. As a support for practice, 3. As an individual and interactive learning media. Electronic or Computer Aided Learning could not always be implemented in the sampe pattern, however, characteristics of each SMK (Sekolah Menengah Kejuruan/Vocational High School), mainly, in the availability aspects of teacher and facility might be an important consideration.

Keywords: Electronic Modul, Computer Aided Learning, Vocational High School

A. Introduction

One of formal education which hold vocational education at the high strata/level education is Sekolah Menengah Kejuruan/SMK (Vocational Senior High School). Such a school is a further alternative school for Sekolah Menengah Pertama/SMP or Madrasah Tsanawiyah/MTs (Yunior High School) graduates, or other equal level forms. This school emphazises at learning programs which prioritize students competency development, comprises of conducting well at specific jobs, having good workplace adaptability, having good insight of job opportunities and preparedness to fulfil them, as

well as, self-development ability for the future. Therefore, SMK has important roles in preparing students for specific jobs.

According to the Decree of Directorate General of Primary and Middle Education, number: 251/C/KEP/MN/2008, date: August 22nd, 2008, there are six expertise fields to be developed in SMK, those are: Engineering and Technology; Information Technology and Communication; Health; Arts; Tour and Handycraft; Agrobussiness and Agrotechnology; Bussiness and Management. The subject of machining is one of subjects in Production Machine expertise program which is included in SMK of Engineering and Technology field. The learning activity of this subject was held in a workshop in order to guide and direct student skills in operating production machine.

Addressing science and technology development in globalization era, education institution, as well as SMK, has to anticipate demands of competitive and good problem solver-workforces. Learning process have to develop merely not only skills aspect, but also other aspects, such as: adaptability, ease of retooling, multiskiling, problem solving ability, and communication skills. Therefore, learning reorientation from *teaching model* to *learning model* by empowering students is urgently needed. Meanwhile, paradigm shifting of learning definition has been taking place to be *learning to know, learning to do, learning to be and learning to live together.*

In more detail explanation, Suyanto (2007) explain paradigm shifting of changes in learning as the following:

Traditional Learning	*New Learning*
Teacher Centered	*Student Centered*
Single Media	*Multi Media*
Isolated Media	*Collaborative*
Information Delivery	*Information Exchange*
Factual, Knowledge Based	*Critical Thinking*
Learning Decision	*Informed Making*
Push	*Pull*

Adapting to that learning paradigm shifting, enjoyable-smarting-strengthening learning climate should be created. Therefore, learning climate must be built to be active, innovative, creative and enjoyable learning activity which has characteristics as the following (P3AI UNY, 2008):

- Multi-method, Multi-media
- Teamwork practice
- Sorrounding empowerment
- Indoor and Outdoor activities
- Multi-aspect (logic, practical, ethics)

One of learning models which accommodates the above ideal learning is constructivistics learning. According to Pardjono (2006:13), in learning process, a teacher organize activity and the environment so that the students be allowed to develop their knowledge and understanding. By authentic learning activity which is more complicated, open to be expert, learners are allowed to collaborate to construct knowledge.

Besides learning method, education media plays an important role in learning method. Among various available learning media, nowdays, a computer is an ideal learning media due to its advantages. Firstly, a computer works based on programs so that itis flexible in handling or adapting with various problems. Secondly, a computer can combine audio and video components. Thirdly, a computer can conduct logic and arithmetic operation, analyze and report data. Fourthly, by a computer no boundary or repeated remediation can be done (Willianto, 1990). Some research of computer based learning application has been successfully conducted at several variations (Chomaidi, 1992; Suharyanto, 2002; Subardjono, 1992).

Computer based learning is more and more popular and widely implemented in some countries from primary up to higher education. Computer based learning software development deserves to be conducted due to its advantages, those are: 1. It is an effective learning media for its ability to make easy learning process and enhance learning quality. 2. It can enhance learning motivation. 3. It can be used as effectively direct and immediate feedback to the learners.

It greatly support individual learning. 5. It trains learners for skill in choosing subject matters. 6. It allows learners to more recognize and familiar with computer. 7. It become more interesting due to its completeness, including: colours, songs, pictures, graphs and animations so that the learning process can be more interesting.

Some research of computer based learning application has been successfully conducted at several variations. Chomaidi's research (1992) to senior high school students shows that teaching activity and media efficiency significantly affected their learning motivation. Suharyanto (2002) reported that remediation program enhanced average score of students achievement at the subject of Basic Physics up to 6.09 and 9.60 for written and computer aided remedy program, respectively. Furtherly, he concluded that both remedy programs were significantly different. Subardjono's research (1992) at the subject of Programming, concluded that computer aided learning really could increase programming mastery compare to traditional learning.

Other study results to the relevan research (Amat Jaedun, 2001; Sunaryo, 2001) showed that there were still many teachers addressed difficulty in the subject of Machining which was indicated by low students competence. Several similar researchs to other subjects (Wagiran, 2002; Wagiran,2003; Didik Nurhadiyanto, 2003; Wagiran and Didik Nurhadiyanto, 2003a; Wagiran and Didik Nurhadiyanto, 2003b), showed that contextual-contructivistism learning implementation in various forms could enhance learning quality which was indicated by activity, independence, and achievement increase. Therefore, this learning model deserve to be implemented in SMK level.

In computer aided learning, students mastery can be adapted to their ability. It means that after mastering a subject, a student has to take further lessons. This learning could be hoped to assist a student of lower intelligence level. Now, many subjects are still taught based on teachers' understanding speed, regardless the student of lower intelligence level, so that this student will left behind compare to the intelligent student.

Of course, this will cause disadvantages in vocational education eventhough many of them, actually may have good potencies deserve to be developed by giving them study opportunities according to their own ways.

Computer involvement in learning combined with constructivism learning approach will give positive values in order to empower students, especially for SMK level education. By this learning implementation, hopefully:

1. It can enhance learning effectivity by using all kinds of learning resources in spite of teachers and textbooks;
2. It can be more efficient; every student can be served according to their learning speed;
3. It can be more interesting throughout various appearances and enjoyable learning;
4. It can enhance students motivation in mastering the subject; and
5. It can show more concrete and visible from abstract things so the students can construct them.

Therefore, this research is very important to be conducted in order to enhance learning quality, especially, in SMK of Engineering and Technology group, mainly, which are related to the subject of Machining, to pass the SMK graduates who are really matched with industrial demands.

In considerance with the importance and advantages of the computer utilization, this research aims at finding out a computer base constructivism learning model, which can be used in learning that regard to the students characteristics and their diversity of ability in conducting learning of Machining subject. The specific aims of this research are as follows:

1. Producing empirical and theoretical proven learning model which matched with learning implementation demand in Competence Base Curricullum;
2. Constructing contextual-constructivism learning moduls in the subject of Machining in order to enhance learning quality;
3. Constructing planning for learning as a guidance for teachers in conducting learning by those moduls;
4. Enhancing teachers competence in conducting learning innovation;
5. Familiarizing teachers in conducting Class-Action Research;
6. Sosializing empirical and theoretical proven learning model so that it can be implemented to wider scopes.
7. Enhancing teachers sensibility in identifying learning problem and efforts in solving them.
8. Solving learning problems so that enhancing the students achievement.

B. RESEARCH METHOD

Research and Development (R&D) method was used in this research for 2 years. It has been done throughout stages: demands and problems analysis, planning, development, implementation, control and socialization. Those stages were modified into three stages: fisrt stage has been conducted and resulted in empirically proven computer aided learning modul, especially for Milling Machine practice learning.

On the second year, electronic modul learning method was implemented to some SMK. The first step was socialization by training with modul had been implemented to sample schools: SMK Negeri 2 Depok, SMK Negeri 2 Yogyakarta, SMK Negeri 3 Yogyakarta, and SMK Negeri Seyegan. Monitoring was conducted to know the effectivity generally by collecting both teachers and students response.

Qualitative data were collected by documentation, observation, deep interview from any sources. Brainstorming with experts was conducted to complete the data. To ensure the consistency in assessment, the evaluation sheets were socialized to the teachers, and then, the data were analyzed descriptively.

C. RESEARCH RESULTS AND DISCUSSION

Materials taken out for interactive media were practice with Milling Machine which consisted of four parts. The first part comprised of definition, working principles, working safety, and frais classification. The second part comprised of planning, chuck, Milling machine, jigs and fixtures preparation. The third part explained the selection of and setting the cutting tools. The four part included evaluation. Supporting illustration of part one, two, and three varied from moving text, moving pictures and stationary pictures. Stationary pictures dominated in this show.

Expert validation was the further step after finishing the making of computer base learning media. In this case, the media was validated by 9 experts including computer base media experts and learning experts. The results were tabulated as the following:

No.	Item	Score	Category	Improvement Needed
1.	Media Quality	3.328	Good	User-friendliness,Independence
2.	Program Performance Quality	2.968	Fairly	Pictures, animation, colour composition, music
3.	Attractiveness	2.800	Fairly	Screen colour, illustration,

				layout
4.	a. Material Organization	3.291	Good	Font proportionality
	b. Consistency	2.958	Fairly	
	c. Format	3.43	Good	
	d. Font Style and Size	3.02	Good	

In the final part of the evaluation, all of the experts stated that this computer base media had to be improved. Base on the experts validation and suggestion, the improvement was done, and implementation to 30 students of SMK Negeri 3 Yogyakarta, majoring in Mechanical Engineering, was carried out. The students response can be summarized as the following:

No.	Item	Score	Category	Improvement Needed
1.	Media Quality	3.286	Good	User-friendliness,Independence
2.	Program Performance Quality	3.175	Good	Pictures, music
3.	Attractiveness	3.44	Good	illustration, layout
4.	a. Material Organization	2.90	Good	-
	b. Consistency	2.866	Fairly	
	c. Format	3.075	Good	
	d. Font Style and Size	3.30	Good	

The response of 16 teachers who had been trained and then would be implement the media, can be summarized as the following:

No.	Item	Score	Category	Improvement Needed
1.	Media Quality	3.432	Good	User-friendliness,Independence
2.	Program Performance Quality	3.128	Good	Program manual clearness
3.	Attractiveness	2.930	Good	-
4.	a. Material Organization	3.329	Good	-
	b. Consistency	3.214	Fairly	
	c. Format	3.34	Good	

	d. Font Style and Size	3.262	Good	

Besides the response to the media quality, the teachers response to the feasibility to use the media can be described as the following:

No.	Item for Media Usage Feasibility	Percentage of teachers (%)
1.	The research deserves to be followed up	87.5
2.	The objective clearness of the learning	87.5
3.	The Computer Aided Learning (CAL) activate students	81.25
4.	The CAL enhance students independence	93.75
5.	The CAL enhance students motivation	87.5
6.	The CAL enhance students understanding	68.75
7.	The CAL enhance teachers spirit	81.25
8.	The CAL deserves to be implemented to other subjects	100

Base upon the implementation test, almost all the teachers stated that the CAL enhance motivation, attention, activity and reduce students learning obstacles. Therefore the CAL is one of effective effort in enhancing quality of learning.Besides the response to the media quality, the students response to the implementation of the CAL can be described as the following:

No.	Item for the CAL	Percentage of students (%)
1.	The CAL help to understand the subject well	93.44
2.	The sources for material understanding (media/teachers/friends)	76.89/18.03/3.31
3.	The Computer Aided Learning (CAL) attractiveness (self speed learning/very enjoyable)	75.41/24.59
4.	The students eagerness to the CAL(very/less/not)	82.79/4.75/2.46
5.	The CAL give skill in operating computer/seeking learning resources	91.80/9.20
6.	Difficulty in obtaining operating computer/learning resources	30.33/69.67

7.	The CAL deserves to be implemented to other subjects	90.16
8.	The CAL is very useful	95.90

The electronic modul development needs some stages: introduction study, model formulation, validation, limited test, wider test, revision and final product formulation. All those stages has been carried out in this research. Based on the data, it could be concluded that the electronic modul built has been satisfied both theoretically and empirically feasibility aspects.

Besides the teachers and students response which show the feasibility of the modul usage, another aspect important to be considered is implementation pattern to each SMK. Base on wider test, every SMK has unique characteristics, mainly related to the teachers and facility availability. Various computer literation of the teachers is an important factor to be paid attention, because it affect to their way of using the computer program. In this research, the program used was Macromedia Flash in considerance with its ease to be learned and is slightly more complex compared to other show media such as Power Point. The various facility completeness of every SMK also affected to the learning implementation pattern.

Base on the monitoring during the research, at least there were three pattern implemented by the teachers. The first pattern was to make the CAL media as a show teaching material. In this case, electronic media such as viewer or infocus was used. Teachers used the media to assist in teaching a material to students, while students gave attention the explanation by the media. The second pattern, media was used as practice support. In this case, learning media was installed into one or two computers in workshop so that the students could freely acces it and found out the answer if they found some difficulties. Those two pattern were very suitable for SMK of limited computer facility. Meanwhile, for the adequate computer facility, it is suitable to use individual and interactive learning; one computer could be used by one student.

Base on the above facts, Electronic or Computer Aided Learning could not always be implemented in the sampe pattern, however, characteristics of each SMK (Sekolah Menengah Kejuruan/Vocational High School), mainly, in the availability aspects of teacher and facility might be an important consideration.

D. CONCLUSION AND SUGGESTION

Conclusion:

1. The electronic modul development needs some stages: introduction study, model formulation, validation, limited test, wider test, revision and final product formulation. All those stages has been carried out in this research. Based on the data, it could be concluded that the electronic modul built has been satisfied both theoretically and empirically feasibility aspects.
2. There are three learning implementation patterns using electronic modul, those are: 1. As a showing media, 2. As a support for practice, 3. As an individual and interactive learning media. Electronic or Computer Aided Learning could not always be implemented in the sampe pattern, however, characteristics of each SMK (Sekolah Menengah Kejuruan/Vocational High School), mainly, in the availability aspects of teacher and facility might be an important consideration.

Suggestion:

1. In implementing the CAL, SMK characteristics should be recognize earlier in order to obtain accurate model.
2. Further researchs, mainly, in order to find out the effect of the CAL to the various components of learning quality deserve to be conducted.

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THE RE-CONFIGURATION OF VOCATIONAL EDUCATION AND ITS PROSPECTS TO PROVIDE INNOVATIVE AND COMPETITIVE VOCATIONAL WORKFORCES

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Abstract

The purpose to effortlessly accelerate the development of vocational workforces with "soft skills" characterized in teaching factory which matches to demand driven in its dimension of entrepreneurship and to the mastery of communicative competence in complex communications **is** a logical consequence of globalizing relationships in many sites of human socio-economic needs. Supported with higher thinking and IT literacy, as well as purpose for the creation of work for the workforce of vocational graduates who should be more competitive and ready to work in industries, this implies comprehensive configuration of innovation and creativity in their efficient, effective, and productive habits. To cover this; reviews, observation on several vocational schools, and triangulation to the stakeholders were done.

This paper in its conclusions describes recommendations to the management of vocational schools to have short term, medium term, and long term reconfiguration, by opening the new trendy programs and developing the existed ones or closing the ineffective programs. The other recommendation is that it is also needed to add and polish the activities of teaching-learning with the adaptive ability to communicate in international language, character-building and up to date IT literacy the graduates will be much more effective in entering the job competitiveness and to improve the quality of the curriculum cores; matching to the needs of industries

Vocational education should also update continuously to an anticipation of progress and GLOBAL CHANGES that cannot be dammed; unless faced with the corrective measures without bringing vandalism/bad concerns.

Keywords: Vocation, workforce, demand driven, markets, competitive, communicative competence, global changes

A.Introduction

The government of Republic of Indonesia wishes to make vocational education as the spearhead of her national workforce and even international in relation to the C-AFTA which has been opened at the beginning of this 2010. Vocational education is expected to be able to prepare mid-level engineers who are ready to work and have known the demanded needs of the industry. They are educated to be adopted directly by

the industry. Therefore, the quality, relevance of education and vocational curriculum should be in accordance with t the local needs and opportunities provided by the industries.

Industries, businesses, and the rules of community life are the factors that they must be taken into consideration to create an educated medium by providing miniature for vocational schools teaching-learning activities. If all or a large part of vocational schools provide adequate preparedness in accordance with the business demand, so vocational schools can be considered as one of very important economic asset. Given the importance of a vocational school in its present position, the Department of the National Education of Indonesia in Strategic Plan 2010-2014 and 2005-2009 has a very strong commitment to make vocational educations to become the real model of education as one of the main secondary schools in the country. Therefore, the ratio of its configuration must be rearranged and its direction must be changed to a real approach with an applicative setting of implementation. However, this re-configuration will only come to the target of preparing competitive workforce well if it does not only refer to schools re-position but also the quality of the process which covers the "demand driven".

B. Rationale

Vocational education and trainings in particular as the workforce providers are always required for enhancing the quality of teaching from time to time. The challenge of learning today and tomorrow may not be able to respond and complete with a strategy held yesterday. Needs of businesses and industries from time to time experience growth even change, if we can not adjust to these circumstances, it is likely that we will not be able to equip our students with the skills needed in the world of work. Competitive advantages in various aspects of self-dealings are needed in preparation for globalization.

Industry requires a lot of graduates of vocational high school. One reason is that graduates of vocational school is seen as much more ready to use compared to other graduates from similar levels. It is logical since there were many vocational students who have accepted to work before graduating from school. Fortunately, this opportunity is figured by progressive vocational schools with their behaviors and characterized "soft-skills"; oriented towards the needs of learners and demands of the market and the

basis for reviewing the existence of competence in particular skills. For this purpose the writer did: a mini research on " vocational expertise studies program" of interest which provide opportunities for vocational schools to refigure themselves and develop in order to deal with the era of C-AFTA". By observing some vocational schools in Pontianak, Jakarta, Yogyakarta, and Surakarta the writer tried to have close data in order to be able to offer the possibilities of reconfiguration of vocational schools and their future to prepare competitive workforces. Thus, it is meaningful to provide managerial recommendations regarding vocational skill courses that can be opened and developed in vocational schools in the future, especially in terms of providing workforce with competitive, adaptive, standard and reliable competence, and soft skills to cope with the demands of workforce in the rolling C-AFTA.

C. Reflective Discussion

To get the entry point of reconfiguration on the real condition, an observation was conducted with the involvement of some respondents randomly consisting of: junior high school students, vocational schools, vocational school graduates, educators, and business / industry. Based on the results obtained there was a very important information that the courses of study skills that are sought after and need to be maintained is accounting; for administrative is less attractive. This general view tells us that a real change of competence and a real development of futuristic capacities relevant to the real needs of the market workforce is considered very important to be created and maximized functionally. This should also imply the reflection of the three dimensions of competencies namely: 1. Basic competencies that relate to the personal attributes necessary for undertaking any task, including sensitivity, sense of aesthetics, critical thinking, creativity, motivation for work, capacity for analysis and synthesis, as well as the ability to grasp methodologies, tools, and techniques;2. Systemic competencies that relate to the overall capacity for working in changing context, including the ability to develop a holistic perspective, to change and redefine one's role, to take initiative, and to chart news paths; 3. Adaptable competencies that relate to the social aspects of work, including social skills, communication skills, the capacity to understand and accommodate other's view, as well as the ability to work with others and in interdisciplinary contexts. The reconfiguration may take this all into a deep consideration. (Tan, 2009)

Moreover, in order to cover the reflective configuration from the data collected, the writer summarizes the results as follow: *(1). Education levels which are the most popular medium (high school 59.45%:vocational school 40.55%) (2). Basis for selecting vocational schools (Parents: 45.81%, Friends: 39.16%, Find out: 15.03%)* ***(3)****.The reason for choosing vocational school (Want to work faster: 59.45%,Not accepted in high school: 12.96%, Economic factors: 12:10%, The desire of parents: 07.85%, Others: 07.64%.* This information describes that there was a real problem of having input for vocational school students. The students belong to the vocational schools can be estimated as the second class of INPUT under the INPUT for other high school; but having reason to work faster, reasonably. Thus, re-configuration must consider this as a real means of viewpoint. Furthermore, it is also recorded that *(4). The most popular expertise program (Accounting: 21.66%, IT and Communications / telecommunications: 15.92% , Tourism and Hospitality Management: 13.80%, Graphic Design and Advertising: 12.95% ,Music: 08.70% Accounting skills program remains the first choice for junior high school students, while for the Administrative Office are not included in the 5 major skills programs selected)*. This means that developing accounting supported with some added values will be a very prospective program in the future; in contrast, closing administrative program will be a good solution to refigure effective program on vocational school programs. This is strengthened by *(5). The program expected to open based on the new skills and demand driven (Communications and Telecommunications: 38.64%,Graphic Design, Animation & Advertising: 36.09% Catering: 10.83%,Skin & Hair Beauty: 06.78%, Dressmaking: 03.83%)*

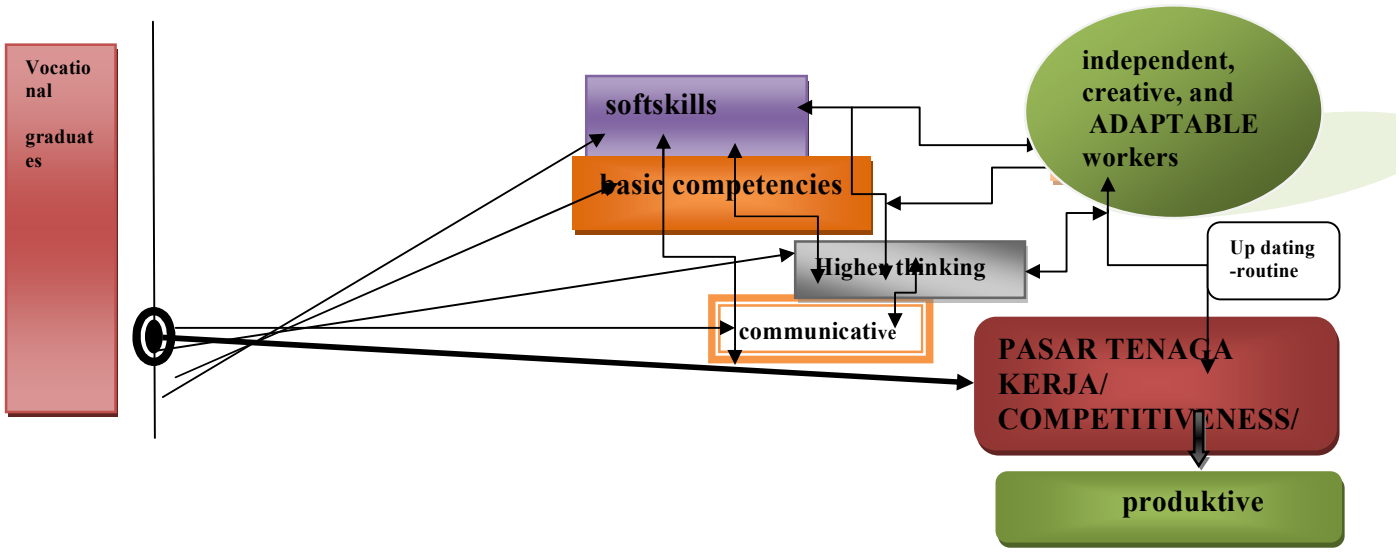
Related to the existence of *(6). whether or not maintaining vocational schools (Respondents who said it still needs to maintain vocational school 98.84%, Respondents who expressed no need to maintain the vocational school 01:20%, adding skills courses 65.12%, opening new vocational school with new skills program 19.77% , changing skills courses 4.65%).* This implies that at any certain condition, vocational school is still considered as one of the most important solutions for preparing students to be able to survive and make meaningful life. For this, *(7). New skills Program that match market needs (IT and Communications and Telecommunications 47.67% , Graphic Design, Animation and Advertising 29.07%, 5.81% Catering, Dressmaking 5.81%, Good Beauty Skin and Hair 5.81%)* can be other supportive programs. This is also in line with the finding that *(8). Readiness of respondents when the expertise of the*

old program was closed and replaced with new skills programs (Respondents who expressed readiness 70.93%, Respondents who declared not ready 20.93%, Respondents who did not answer 8.14%) considered high. Furthermore, in terms of employee development *(9). Respondents if an existing program expertise closed (Respondent that states learn about and deepen the competence program of new skills 63.95%, Asked respondents who said high school or junior high mutation to 16.28%, 11.63% of respondents did not answer, Other 8.14%).* This reflects that closing a certain program will bring them to a lightening motivation to develop themselves and even not stop to learn.

Referring to the observation result on *(10). Respondents from the Tracery: Business and Industry (Respondents who claimed to recruit staffs from graduate vocational skills courses in Accounting and Office 80%. While the respondents who claimed not to recruit employees from graduates of vocational skill courses in Accounting and Office Administration 20%,* it can be learned that the market for vocational school for job opportunities is still considered feasible. This is also supported by *(11). Suitability of vocational competency skills courses in Accounting and Office Administration with company requirements (Respondents who declared in accordance 82.11%, Respondents who declared unsuitable 17.89%).* Thus, *(12).Whether or not to be synchronization between the school curriculum with business and industry (Respondents who expressed a very necessary 52.63%, Respondents who claimed 45.26%,Respondents who do not need to state 2.11%)* reflects the meaningfulness of having vocational schools in the real need of surviving by developing the process of teaching-learning with synchronized curriculum. Moreover, this also answers the hope of industries to have employees from vocational graduates as *(13).Program expertise needed by the most respondents of Industries (Accounting for 25.34%, 20.61% Office Administration, Sales 14.53%, IT Communications and Telecommunications 11.49%, Mechanical engineering 6.08%, Electronics 5.74%, Electricity 4.39%, Graphic Design and Advertising- Animation 3.72%).* Respondents who were taken as the sample is the industries where vocational students attending programs to learn skills (Accounting and Office Administration) in the real settings.

On the other hand, reflecting the data obtained above, holistically there will be an implication of a real empirical fact of the process in teaching-learning that the low level of competence and low competitive capacity of the graduates impact " the

futuristic business" that tends to bring negative image of vocational education itself. Its reflection is that vocational education has not been able to provide a ready workforce to respond the demands of the development of a fast-growing business world and the needs of the industrial world that tends to fulfill the demand of "improvisation of life skills" adequately and anticipatively. Another obstacle that happens is that settings of vocational education with its programs, activities, behaviors, habits, culture and value system create a critical gap between the world of vocational education with the industrial world. Vocational education programs tend to be oriented to the activities of teaching subjects rather than the achievement of competence of "long life skills" demanded by the job requirements. Loads for the program of "additional value" and loads of "soft skills" for complex communication, collaborative capabilities and the ability to use information have not been programmed accurately and properly oriented. Therefore, in order to solve these obstacles, learning model of "Teaching Factory" which refers to "school work" can be directed to be one of the real solutions.



D. Re-Configuration on the Vocational Teaching-Learning Process

In the era of AFLA, C-AFTA, or APEC, Indonesia as a country in which incorporated; considers vocational education, works on vocational education, and develops vocational education as attempts to achieve comprehensive, intelligent and competitive human in order to be independent, strong, creative, and innovative in hard skills and soft kills to meet the global competition (Strategic Plan 2010-2014 and 2005-

2009 by the Government of Indonesia). To do this all, with the philosophy of experience is the only basis for knowledge and wisdom, the education is conducted as an experience proceeding the original activity of the individual when dealing with the environment in a holistic setting as well as the intention to be productive. Experience is defined as an activity of human dignity dignifying the environment in its context which is very much encouraged by the development and the progress of the age in the global sphere. As a result, vocational education in order to humanize humans is definitely a need to live and work for the renewal of life as Dewey (1859-1952) states that *Education is life itself.* He believed that learning was active and schooling unnecessarily long and restrictive but to do things and live in a community which gave them real, guided experiences which fostered their capacity to contribute to society. In short, students should be involved in real-life tasks and challenges.

In its real implementation, philosophically, vocational education is not only worked on education to make students become "smarter" but also to be able to get around to live with an adaptable mindset as *Non Scholae Sed Vitae Discimus.(*meaning*:* learning is not just for being smart or score but more primarily for life). This philosophical conception is reinforced by the fact that "change" from day to day is being a *conditio sine qua non*, and that requires the students to continue to adapt advanced. Based on this philosophical breath, vocational education and trainings for workers in the global dimension must remain human beings seeking: a. spiritual intelligence (virtuous character, morality, superior figure, and soft-skilled) b. emotional and social intelligence (appreciative, sensitive, democratic, empathetic, etc.) c. intelectual intelligence (thought to carry "higher thinking", critical, communicative, IT literacy) d. kinesthetic intelligence (actualizing and qualifying high human body function) e. psychomotoric intelligence (performing with a high commitment as skilled workers) f. futuristic intelligence (ability to predict the future by relying on hard skills and soft skills). Graduates who have (a - f) are able to be transformed as global, smart, and adaptive workers. (Muijs and David, 2005)

Meanwhile, its application in the field needs to be supported by the presence of: 1) progressive curriculum with the process of Teaching Factory. Such a curriculum should become the main reference in accordance with the demands of a globalized world that tends to think GLOBAL and act LOCAL. This means that the potential that exists around the learners should be the core of elements to achieve a competitive,

global, honest and grateful quality. Therefore, curriculum development should always consider (Permendiknas No:2 Tahun 2006): a) content-capacity standard and the original core of human development in accordance with its own potential, b) standard of process that breathes experiential, and holistic-explorative. c) standards of accredited competency which is measurable and universal, legally-formal education; making it easier for the graduates entering the market with commitment and look optimal. d) standards of education workforce educators who have professional performance and character: " service based quality" e) standard of infrastructure: up to date, maintained, preserved, and functioning optimally f) standards of funding which is efficient and effective in accordance with the demands of the target level of professionalism g) standard of management of oriented agenda for customer's satisfaction" h) standards of evaluation on vocational education which is in a comprehensive, fair, and honest assessment. 2) learning technique of "action based learning."

Learning lessons for preparing to live in this global era must take into account the aspects of "acting out" (McGill & Anne, 2004) to handle the process of mechanization of life and robotizing industry. By acting out on the action based learning students will be able to build strong self-confidence and life skills. This type of learning can be implemented with the approaches: a) learning by doing, namely the principle of learning that emphasizes the active side of the learners in the learning process from the physical, mental, intellectual to the emotional to proceed to learn while working. Learning by doing provides emphasis that learning to collaborate on the aspects of "work " in the domain of active life on the grounds. Identity, self potential and direction of futuristic imagination will guide students in the belief of " doing is a part of learning and learning implies doing so learning to do (physical), learning to know (Psychic), learning to be (mentality), and learning to live together (social) and dignifying humans proceed in an active, creative, innovative and responsible performance. b) task based learning, the learning approach that emphasizes the role of assigment. Assignments in the learning become important parts that can stimulate the activity of the left and right hemisphere of the learners to not only organize the knowledge / theoretically but also able to organize psychomotor behaviors in the dimension of mutual cooperation and collaboration. Thus it can be understood that the orientation of the task that is the "Practice" will certainly bring many advantages in the sphere of competence of students

in a comprehensive manner. "Practice makes Perfect" is not only part of the slogan, but truly experienced so that learners can develop holistically. (Willis & Willis, 2007).

E.Conclusion

The writer can infer that the implications of this paper provide short-term, medium term and long term recommendations for re-configuration on vocational education and strengthen them in:

1. Short term: a. Maintaining course by improving their accounting expertise sale value of graduates to adapt to market needs, particularly through increasing "added values" in the complex field of communication and higher levels of thinking and the ability to access and use information (ICT). b. Renewing the CORE of Curriculum towards the quality "matching" to the real needs in the industrial demand. c. Opening trendy skills programs as the impact of IT modern lifestyle; d. Opening program on entrepreneurships expertise.
2. Medium Term: a. Closing the ineffective or non prospectful programs at the vocational skills within the next five years, b. Opening skills program of job prospects in the next five to ten years. Catering expertise program (one of them) may provide employment opportunities and can equip students to live independently. c. Developing career guidance, job training, internships, and providing information about the world of works which are and will be there in the future. d. Creating miniature-work system in the industries to be simulated and integrated in the learning process as an effect of teaching factory
3. Long term: Configuring vocational schools as assets of the National Economic Development and Self-Competitiveness.

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SOFT SKILLS EDUCATION FOR PREPARING VOCATIONAL SECONDARY HIGH SCHOOL IN PRODUCING SKILLED GRADUATES

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Abstract

In this global era, the state requires a competitive workforce, adaptive and anticipatory, open to changes, capable of learning, skilled, easily retrained, as well as having broad and strong basic skills and be able to develop themselves. This paper discusses how to prepare graduates of Vocational Secondary School, which can be characterized as above through the effective and efficient education. Based on this research, a good workforce must have the soft skills (leadership, personality, and motivation). Models need to incorporate education in vocational hard skills and soft skills through three alternative options, namely: (1) Educational aspects of soft skills, basic vocational, and entrepreneurship conducted in schools, while the educational aspects of hard skills in the industry, (2) Educational aspects soft skills are implemented in schools, educational aspects of hard skills implemented when an apprentice in the industry, or (3) Education for all aspects of soft skills in schools, educational aspects of hard skills, basic vocational, and entrepreneurship teaching conducted at the factory. To accommodate these conditions, the vocational curriculum structure is made simple, with subjects: mandatory based on the National Curriculum, The Basics of Communication, Applied Mathematics, Computers, Scientific Method, Indonesian language, English, Project Work and entrepreneurship, and Vocational Training. Learning strategy in school uses Contextual Teaching Learning with active learning, if the place of education in industry or teaching factory using learning by doing, followed by a performance evaluation test.

Keywords: soft skills education, vocational

A. Introduction

New world order, including Indonesia's economic structure is changing in the direction of free trade and global era characterized by more cooperation opportunities between countries. But on the other hand, these changes lead to tighter competition in terms of goods, services, capital and labor / human resources. To be able to act in that era required the Human Resources (HR), which has openly competitiveness with other countries, adaptive and adaptable to a variety of changes and new conditions, open to

changes, capable of learning how to learn, have various skills, easily retrained, as well as having extensive basic capabilities, powerful, and essential for growth in the future.

To be able to follow the new world order, Tony Wagner (2008), in the book The Global Achievement Gap in order to write the Seven Skills Ability to Survive in the New World Order, namely: (1) Critical Thinking and Problem Solving, (2) Collaboration Across Networks and Leading by Influence, (3) Agility and Adaptability, (4) Initiative and Entrepreneurialism, (5) Effective Oral and Written Communication, (6) Accessing and Analyzing Information, and (7) Curiosity and Imagination.

Thus the quality of human resources is one of the most important factor in achieving successful development program. Qualified human resources will be able to manage natural resources properly and efficiently. HR problems can not be separated from labor problems. The quality of labor depends on the quality of human resources. Therefore, the quality of human resources should be given priority access to improved and developed in order to obtain good quality workforce. Qualified workforce and a high work ethic will strengthen the industry position that will eventually support country's economy.

Increased capacity and skills for the youth worker candidates is the responsibility of education, both formal and non formal education. Education is an integral part that can not be separated from the process of preparation of qualified human resources, strong and skilled. In other words, through education would be obtained by prospective workers a quality so that more productive and capable of competing with their counterparts from other countries.

Agreed with the above opinion of Tony Wagner, from the literature mentioned that in this 21st century, as a product education students are required to have competency: (1) Communication Skills, (2) Critical and Creative Thinking, (3) Information / Digital Literacy, (4) Inquiry / Reasoning Skills, (5) Interpersonal Skills, (6) Multicultural / Multilingual Literacy, (7) Problem Solving, (8) Technological Skills. When examined from the Eight Graduates Competency, competencies 1 through 7 is a soft skills, while eight are hard skills competency. Labor quality actually can be seen from their performance at work both to work independently (entrepreneurship) or working in the company. Performance measure that is easily seen is the quality of the product. Many aspects also determine the quality of employee work product.

Here are presented the results of a survey into the manufacturing industry in order to know whether the aspects that influence in producing a quality product. Corporate leaders give opinions that the contribution of knowledge is 23%, skills is 22.33%, attitude / character is 28.33% and physical condition is 26.33% . Matching employees give opinions that contribution of knowledge is 23 %, skills is 20 %, attitude / character is 30 % and physical condition is 27 %.

From the two results above it appears that aspects of the attitude / character is the aspect that has the largest contribution to producing a quality product followed by a physical condition, knowledge and skills. This becomes interesting, considering that at this time vocational school in educating their students more emphasis to the aspects of skills and knowledge. Is this fact that constitutes a gap between education and industry. Therefore, to overcome the existing gap, the company made the following strategies: (1) In choosing a new employee more emphasis on the attitude, (2) Basic skills are an advantage for new employees in manufacturing industry includes two things, namely to read technical drawings (blue print) and use measuring devices, (3) New hires need special training, (4) Training held in the company, and (5) Training materials: Company Regulation, safety, motivation, knowledge of ISO 9000.

Based on the above matters, which became our big job is how to prepare the human resources that have openly competitiveness with other countries, adaptive and adaptable to a variety of changes and new conditions, open to changes, capable of learning how to learn, has a range of skills, easily retrained, as well as having extensive basic capabilities, powerful, and fundamental to flourish in the years to come. This paper wants to discuss how planning in vocational education to prepare the workforce needs that have characteristics as mentioned above, which can be produced through education in schools with effective and efficient manner.

B. Profile of workers needed by the world of work

Need assessment study in the manufacturing industry in the Yogyakarta region obtained results as shown in Figure 1. Needs assessment study in the automotive industry in the Yogyakarta region obtained results as shown in Figure 1.

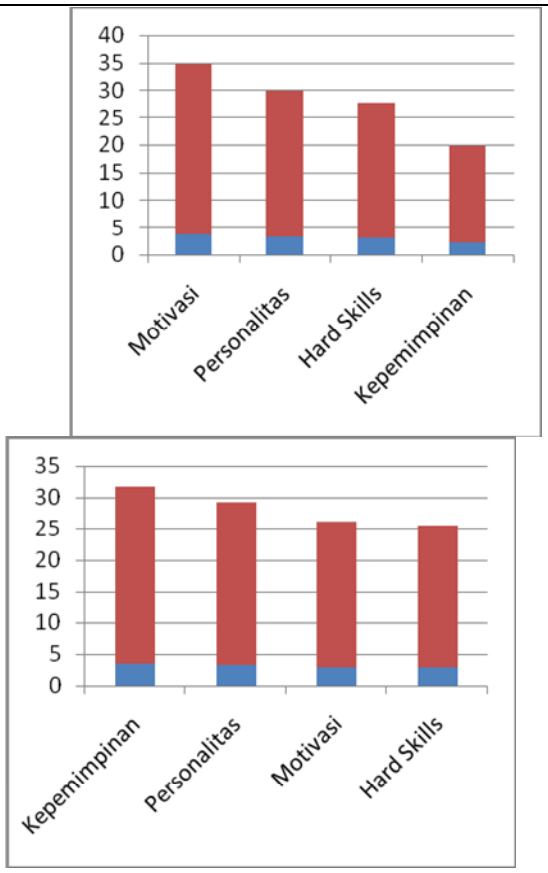

Figure 1. Need assessment Results in the machining industry (left) and the automotive industry

From the needs assessment results above it appears that aspects of soft skills (leadership, personality, and motivation) is the dominant labor required as a condition of employment. Therefore, to complement the results of the needs assessment also conducted a Focused Group Discussion (FGD) with stakeholders namely, representatives of vocational secondary school, industry , Department of Education, and Vocational Education Expert specifically discuss how important aspects of soft skills required in jobs for workers. From the FGD result that soft skill aspects important in order is: discipline, honesty, commitment, responsibility, confidence, ethics, manners, and cooperation.

C. Alternative Model in Vocational Education

Education in schools can not be separated from the instructional strategy so that educational goals can be achieved optimally, for the school to apply various learning models in accordance with the course and characteristics of learners. The word

model can be interpreted as patterns or forms. Relation to vocational education model here the word as it implies a form or pattern of vocational education. The emergence of various models of vocational education, can not be released to the community and their needs.

Simanjuntak in Heru Subroto (2004) suggested three models of vocational education in the sense of a skilled workforce that is (1) Vocational school, (2) a system of cooperation and (3) a combination of education and training. The model is a vocational school in the sense that conduct in formal education. This model is widely adopted in many countries, in Indonesia in the form of Vocational Secondary School (SMK). Operation at a vocational school in the school with the material is divided into two parts, the theory is given in the classroom and practice conducted in the laboratory / workshop. The whole theory and practice of educational activities conducted in schools with programs focusing on other forms of basic skills.

Production school model is a further development of vocational schools. Grenert and Weimann in Heru Subroto (2004) distinguish between production schools in three basic models are: (1) School of simple production, (2) School of developing production, and (3) School of developing production in the factory as a place of learning.

The first model is simple in its execution of production schools have simple forms that have a fundamental nature. Characteristic of this model refers to the characteristics of the organization at a school. Between production schools and educational activities covered by the institutions and forms of organization of schooling is determined by the bureaucratic rules. Such schools are equipped with a workshop or a building for its activities. Viewed from the simulated reality of the company, commensurate with a firm hand job. Motion carried out which schools are limited. The structure of the personnel structure of the achievements and generally subject to the norms of school organization.

The second model, namely training and production, its activity is combining educational activities and production. This form of organization characterized by a combination of the production department of education. Such schools are equipped workshops for education and workshops for production. Simulation level on par with manufacturing companies. This school is not bound by the administration rules , and thus more likely to be free.

The third model, namely the production school in Production Training Corporation. This model is also called the Teaching Factory. This model is fully integrated between studying and working in the field of basic or core skills. Corporate form of organization, while its production processes with the manufacture of finished goods in modern industry. The teachers come from experts who have trained and equipped science education. This school was established within the framework of large-scale development strategy which has the function of observing the problem of education as continuing education, provide information, consultation and educational development. Teaching Factory is one of innovation in an effort to better-quality vocational empowerment. This principle aims to position as a producer of vocational school graduates who are good and competent, and serves also as a producer of products and services that can be sold. With this principle can develop vocational business unit producing better products and services that best meet the needs of the community.

One model run by SMK Michael Surakarta and SMK PIKA Semarang, a combination of production activities with the activities of school practices. In the practice of learning to use a pattern of systematic exercise, increased to a pattern combination of exercises with full production. Practice activities of school students in workshops is not only a basic training course, but also did production work is delegated from the workshop exercises (Raharjo,1995). Furthermore, in applications in an integrated learning students learn at the same time played a role in producing the goods be sold as a teaching factory product. Economically, the teaching factory will be able to support the financing of education in vocational education so that the process can be more qualified. Production units is the embryonic development of teaching strategies for the factory. With growing production units are expected to teaching factory will be more easily formed.

The main objective is to build a vocational education graduates have eight competencies, namely: (1) Communication Skills, (2) Critical and Creative Thinking, (3) Information / Digital Literacy, (4) Inquiry / Reasoning Skills, (5) Interpersonal Skills, (6) Multicultural / Multilingual Literacy, (7) Problem Solving, and (8) Technological Skills. To generate prospective workers from the Eight Competencies as defined above, the model of vocational education in an effective and efficient as in Figure 2.

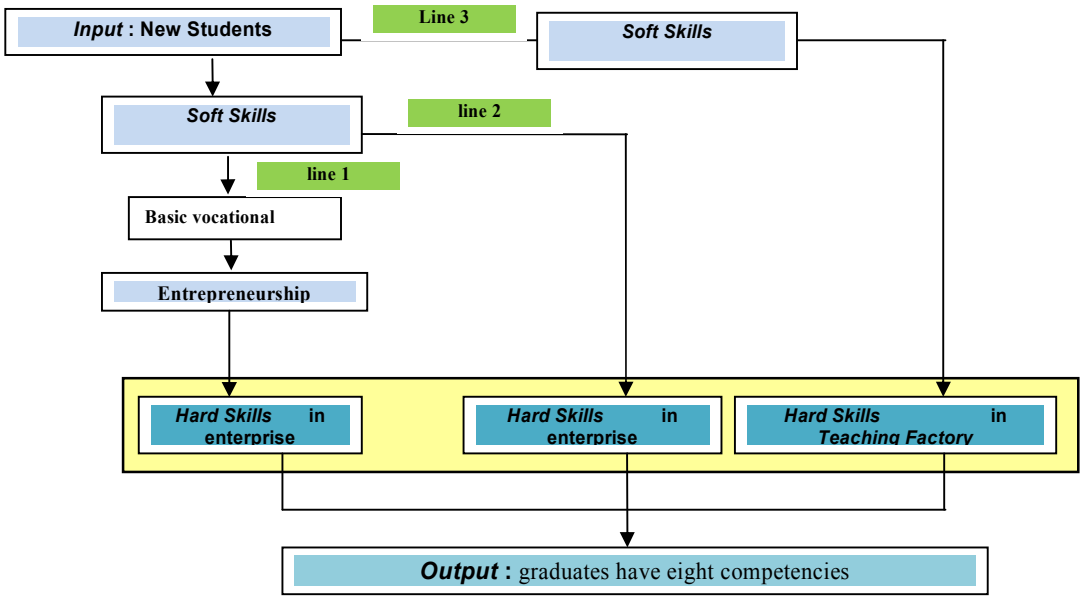

Figure 2. Three Line Alternative Models in Vocational Education

D. Model of Soft Skills Education in Vocational Secondary School

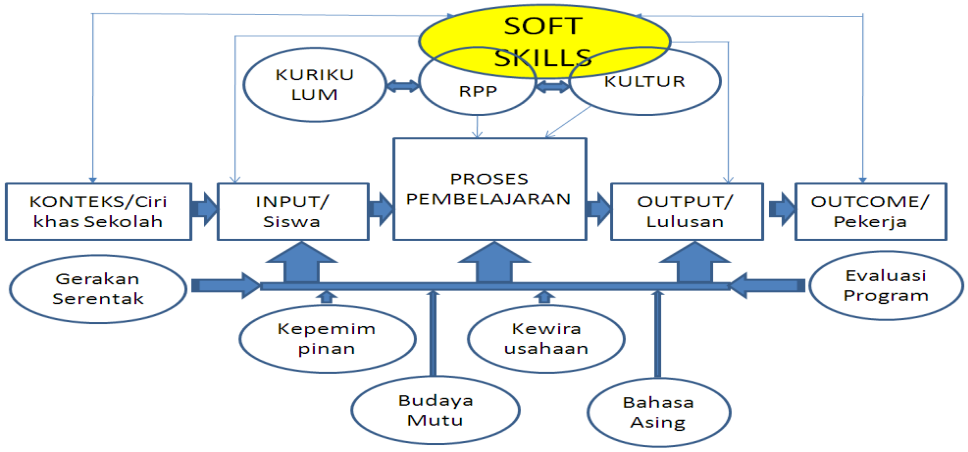

Figure 3. Model of Soft Skills Education in Vocational Secondary School

Model of soft skills education in vocational secondary school can be depicted as in Figure 3. Soft skills education is a curricular activities that are part of the curriculum at vocational schools as outlined either explicitly or implicitly in the Implementation Plan for Learning activity. Education also conducted soft skills through hidden curriculum, namely in the form of rules how to interact between principals, teachers, employees, and his disciples in the context of investment values, the system of regulations, and climate of the school and classroom life.

Aspects of soft skills developed at a vocational school characterized based on the needs of local communities and enterprise who became a partner school. Soft skills education starting from new students entered vocational school, during the learning process, until the students graduate vocational school. Thus, it can be described that began at the school gate entrance to back out the school gate always get an soft skills education. Such education will become a habit, and if these habits are internalized within all students, it has become a movement or school culture.

To evaluate the level of effectiveness, the school should always have communication with its graduates who have worked on enterprises, in order to dig up information on aspects of soft skills important whatever one's own workers. Evaluation results are utilized for updating the activities at school.

Soft skills education should be championed by a strong principal leadership. Without this, soft skills education in schools will not be effective. Education also needs to be sustained soft skills and cultural insights into the personal element of the quality of all schools, i.e. the Principal, Teachers, Employees, Students, Government and Society. Soft skills education should also include entrepreneurship education materials and foreign language. Two of these students believed to be able to equip themselves for life and become the key to their success.

Soft skills education must be a simultaneous movement in one school, the school does all the personal element, namely the Principal, Teachers, Employees, Students, Government and community must be unanimous, one word consistent run. Without the simultaneous movement in schools, soft skills education will not be run effectively and efficiently. And as an activity that should not be forgotten, that the soft skills education programs must be constantly evaluated.

E. Curriculum Structure

Based on competency requirements as written above, then prepared a curriculum to achieve it as simple as possible. Curriculum structure that is suggested as a table below.

No.	Course	Proportion	Education Place		
			Line 1	Line 2	Line 3
1	National Curriculum	10%	School / vocational education	School / vocational education	School / vocational education
2	Communication Basics	5%			
3	Applied Mathematics	5%			
4	Computer	5%			

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5	Scientific Method	5%	institutions	institutions	institutions
6	Indonesian Language	5%			
7	English	5%			
8	*Project Work and Entrepreneurship*	10%		Industry	*Teaching Factory*

Name of subjects in the curricula structure in the nature does not bind. The important content of the syllabus subjects are reflected from its name. Basically the name above subjects required for the learning process at school. If the learning process in industry or teaching factory, then the subject name does not appear because of the learning fused with everyday activities in the industry.

F. Learning Strategies

Learning strategy adopted depends on where education took place. If the place of education in the school / college vocational education, the strategies below relevant to wear. However, if the place of education in industry and in teaching factory, then the most appropriate strategy is learning by doing, followed by the method of performance evaluation test. To give you a learning strategy which will be selected at the school, below are presented examples of learning strategies that can be used.

1) Theory and practice of communication (presentation and discussion)
2) Application of mathematical theory in everyday life
3) Theory and computer applications for various purposes
4) Conducting research laboratory / field
5) Making scientific work in the Indonesian language
6) Theory and practice of English language (reading, listening, conversation)
7) Project work and practice of entrepreneurship
8) Vocational practice in a workshop / laboratory / field.

G. Characteristics of Teachers and instructors needed

To achieve competency as written down in the previous section, the characteristics of teachers / trainers / instructors needed are:

1) The adapter

✓ Teacher / trainer / instructor must be able to adapt curriculum and teaching models that are relevant.

✓ The teacher / instructor can adapt the software and hardware.

- ✓ The teacher / instructor can adapt the technology.
- ✓ The teacher / instructor capable of imagining.

2) The Visionary

- ✓ The teacher / instructor must have the vision and insightful.
- ✓ Ability to view different kinds of learning models outside the field of fosterage.
- ✓ Always improving and strengthening the courses.

3) The Collaborator

- ✓ The teacher / instructor needs to collaborate with fellow teachers / instructors, principals, students, parents, library staff, and other educational staff.
- ✓ Collaborate to create an active learning process, creative, effective, meaningful, and fun.
- ✓ The role of the teacher / instructor as mediator, facilitator.

4) The Risk Taker

- ✓ Courage to take decisions that best suit their duties in carrying out the task of learning in school.

5) The leaner

- ✓ Teachers / instructors create not only knowledge, but also to adapt, extend, and deepen knowledge.

6) The Communicator

- ✓ Teachers / instructors must have ability to communicate clearly in order to convey the substance of which will be provided to students.

7) The Model

- ✓ Teachers / instructors exemplary values and those values must be internalized in real life either by teachers / instructors and their students.

8) The Leader

- ✓ Teacher / instructor as a leader should lead, encourage, and mobilize students to learn well and understand the learning materials delivered.

a. Conclusion

Based on the article above, it is known that the potential labor market graduates of vocational education is still very wide. Competencies required in broad outline includes soft skills and hard skills that are formulated into the Eight Competency Graduates. To produce a workforce having these competencies can be achieved through

three Alternative Path. The third line is if executed with a simple structure and curriculum of productive learning strategies, and supported by teachers / instructors who are creative are believed to effectively and efficiently when compared to the current system is running. Effectiveness is in the simplicity that characterized the system that are offered to the point. Efficiency can be achieved by optimizing the cooperation with industry and learning by doing in the teaching factory.

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ACQUIRING SOFT SKILL THROUGH E- LEARNING

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Abstract

This paper presents of the acquired of soft skills through e-learning. It discusses how importance soft skills through e-learning role in shaping an individual's personality. It is of high importance for every student to acquire adequate skills beyond academic or technical knowledge.

Today, corporations are increasingly relying on e-learning to improve the soft skills of their employees. Till a few years ago, soft skills training was offered only to the sales team as these skills were equated to training in communication and client interaction. But now it is a prerequisite to all categories of employees.

Soft skills are the non-technical skills, abilities and traits that one needs to function in a specific employment environment. They include four sets of workplace competencies: problem-solving and other cognitive skills; oral communication skills; personal qualities and work ethics; and interpersonal and teamwork skills.

Keywords : Soft skill, e –learning

A. Introduction

Over the past 10 years there has been an increase in emphasis on soft skills in VET programs. Reflecting both the demands of potential employers and professional bodies, as well as the creativity of course designers, modules such as first year 'study skills' and final year 'professional skills' have become more and more common. The greatest focus has been placed on fundamental topics such as presentation skills, effective report writing, teamwork, and time/project management.

For decades employers as well as educators frequently complain about a lack in soft skills among graduates from tertiary education institutions. Predominantly missed are communication skills, but additional knowledge in business or project management is also ranking highly on the list of missing skills desirable for graduates entering the business world (Schulz, 2008)

Already more than 40 years ago the German Engineering Association (VDI) recommended that 20% of courses of the engineering curricula should be soft skills.

Engineering graduates should bring along knowledge of foreign languages, cultural awareness, should be teams worker (Pulkho, 2003).

E-learning is usage of network technologies to create, foster, deliver and facilitate learning anytime and anywhere. It holds the key to gearing VET student's talents pools to meet the demands of the global knowledge industry. Today, corporations are increasingly relying on e-learning to improve the soft skills of their employees. Till a few years ago, soft skills training was offered only to the sales team as these skills were equated to training in communication and client interaction. But now it is a prerequisite to all categories of employees. Soft skills are the non-technical skills, abilities and traits that one needs to function in a specific employment environment. They include four sets of workplace competencies: problem-solving and other cognitive skills; oral communication skills; personal qualities and work ethics; and interpersonal and teamwork skills.

With globalization having set in, the technical personnel who till now was not exposed to the client/vendor needs to build a relationship with the client. Acquire soft skills through e-learning is now a prerequisite to all categories of employees. Increased emphasis is being laid on getting trained in working as a team, communication at the workplace and managing aggression at the workplace to reduce differences and increase productivity. We emphasize to discussion acquire soft skill through e- learning, because, today, soft skills are required in all functions of the workplace and companies such as Skill Soft were born with a business model that focused on developing e-learning content on soft skills.

B. Concept of Framework

Before going any further in debating the importance of soft skills we have to clarify the question "What exactly are soft skills?" This basic question is not easy to answer, because the perception of what is a soft skill differs from context to context. A subject may be considered a soft skill in one particular area, and may be considered a hard skill in another. On top of it the understanding of what should be recognized as a soft skill varies widely. Knowledge in project management for instance is "nice to have" for an electrical engineer, but it is a "must to have" for a civil engineer. Training in cultural awareness might be useful for a chemist, but it is an absolute necessity for public or human resources management in societies of diverse cultures. Interesting

enough the internationally renowned encyclopedias have little to say about soft skills. The online encyclopedia "Wikipedia" gives a very broad definition of soft skills, which leaves much room for discussion: "Soft skills refer to the cluster of personality traits, social graces, facility with language, personal habits, friendliness, and optimism that mark people to varying degrees. Soft skills complement hard skills, which are the technical requirements of a job." (Wikipedia, 2007)

After having elaborated so much on soft skills, the answer to why they are considered as being so important is still open. There are numerous reasons for having a critical look at a person's soft skills. One straightforward reason is today's job-market, which in many fields is becoming ever increasingly competitive. To be successful in this tough environment, candidates for jobs have to bring along a "competitive edge" that distinguishes them from other candidates with similar qualifications and comparable evaluation results. And where do they find this competitive advantage? In bringing along additional knowledge and skills, added up by convincing personal traits and habits. This sounds familiar.

Understandably, employers prefer to take in job candidates who will be productive from a very early stage on. If a graduate from university first has to be trained on putting more than three sentences together, how to do a proper presentation, or how to chat in a pleasant and winning manner with colleagues and customers, this graduate will not qualify as a quick starter. Also basic knowledge in business management, project management and general economy will improve the chances of a job candidate considerably. Already during the job interview itself good communication skills are invaluable. They can even serve to successfully cover up weaknesses on the hard skills side. Don't we all know colleagues who are splendid talkers, but there is no action forthcoming from their side? The advantages of displaying positive traits like courtesy, honesty, flexibility, common sense, flawless appearance, etc. during a job interview have not even to be discussed.

Once employed, the success story of people who know how to master soft skills continues because of much better career opportunities. Simple fact, which can be verified in daily business life, is that employers prefer to promote staff members with superior soft skills. Good hard skills alone are not necessarily enough anymore to be a first choice when it comes to promotion. Soft skills are shaping human beings' personality. Any educator's dream is that graduates, especially from tertiary education

institutions, should not only be experts in a certain field but matured personalities with a well balanced, rounded off education. However, this characteristic is reflected in soft skills, not in hard skills.

During the last decades in many societies the opinion on soft skills has changed considerably. Whereas in the past the mastering of hard skills was rated first and soft skills were considered as "nice to have", the perception has been turned upside down.

Although a commonly used term, "e-Learning" can mean different things depending on the context and the audience. In this study we used the following definition of e-Learning: *Instructional content or learning experiences delivered or enabled by computer-based technology*. This definition of e-Learning includes practices such as web-based training (WBT), computer-based training (CBT), and CD-ROM. The definition also includes learning resources that are less frequently classified as e-Learning, such as e-mail or voice mail (both of which are enabled by the use of a computer). While general e-Learning receives much attention in industry publications and research studies, few studies have focused exclusively on the application of e-Learning for soft skills. We used the following definition of soft skills: *Personal and interpersonal behaviors that develop and maximize human performance (for example, leadership, coaching, team building, decision making, initiative). Soft skills do not include technical skills, such as financial, computer, quality, or assembly skills (*Bernthal, 2002).

When comparing past, current, and future use of e-Learning methods, a strong upward trend emerges (see Figure 1). In 1999 most soft skills learning resources (87 percent) were delivered in a classroom setting. During the next two years, the number dropped to 77 percent. Respondents indicated that, in the near future, e-Learning delivery will be used for 42 percent of all soft skills learning resources. Although the growth trend observed in this study is encouraging, the excitement about e-Learning may be greater than the actual growth rates. Adkins *(*Bernthal, 2002) predicts that the adoption rate for e-Learning is likely to be 15 to 20 percent.2 In their 2002 State of the Industry report, Van Buren and Erskine of ASTD *(*Bernthal, 2002) state, "The growth of e-Learning and the decline of instructor-led classroom training has been widely heralded for several years."3 However, they observed that many of the expected increases in e-Learning usage had not materialized. As a caveat to their conclusions,

they cautioned that organizations using blended learning approaches (for example, classroom instruction combined with e-Learning technology) might have categorized these approaches as classroom learning. In the future, it will not be so easy to classify learning experiences as either e-Learning or non e- Learning based.

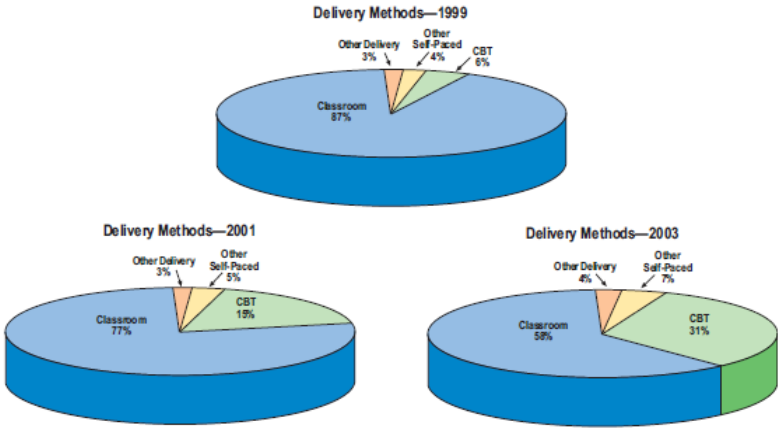

Figure 1: Past, current, and future use of learning delivery methods.

Electronic technology is seeping in to all aspects of the workplace, and even traditional classroom delivery often contains elements of e-Learning. We asked respondents how many of their soft skills learning programs were offered in more than one format and how many learning programs used a blend of delivery formats. Only 13 percent of organizations offered the same soft skills learning content in more than one format. Additionally, few organizations (18 percent) in our sample were offering learning programs that used a blend of delivery methods. Although these numbers are not high, we predict that many organizations will eventually diversify their learning formats and take elements of different delivery options to create the best programs possible. At this point, e-Learning is still in its infancy, but is continuing to grow and evolve rapidly.

Many early e-Learning applications focused on technical skills. The process for learning how to use software or follow a safety procedure, for instance, could easily be broken down into a series of objective steps and delivered in an automated format to one person. Because soft skills are more interpersonally focused, most past learning delivery methods relied on human interaction and were less structured. As shown in Figure 2, most e-Learning delivery still focuses on technical or other non-soft skills. Even so, soft skills do represent a significant proportion (33%) of the topics addressed through e-Learning.

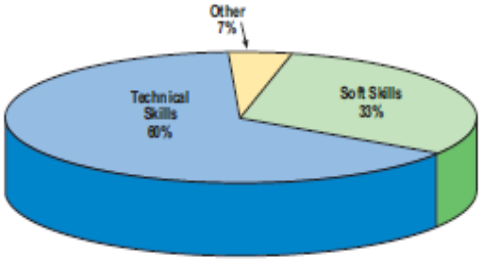

Figure 2: Topics addressed by e-Learning.

The eight major solutions span virtually every functional area of 5000 business organizations globally. E-learning in soft skills are available in areas such as:

*Professional effectiveness

*Management and leadership

*Project effectiveness

*Finance, HR and administration

*Sales and customer-facing skills

*Business strategy and operations

*Safety and health

*Financial services industry.

Learners are actively engaged in all levels through frequent interactivity, practice, feedback and reinforcement. Learner can acquire soft skill through e- learning by content providers include (http://www.hinduonnet.com/thehindu) :

1. Role Play Simulation. These exercises present learners with realistic interactive simulations of everyday workplace scenarios. Role plays have multiple possible outcomes based on learners' responses to the simulation's interactions.
2. Simulated Dialogues. The ability to observe behaviors and their outcomes (positive and negative) is a key strategy for teaching the professional and behavioral skills commonly termed "soft skills". The simulated dialogue strategy gives learners an opportunity to observe and listen to conversations of two or more people.
3. Case Studies A case study strategy describes a complex situation, often in the form of a story, and then asks the learner to explore its characteristics and possible resolutions.
4. Animations. Animations are a key extension of visual designs. Animations are used when movement is an important part of the teaching point.

5. Audio-enabled Learning. Audio feature greatly enhances engagement and retention for many learners. Audio can be the key to the instructional effectiveness of behavior modeling.
6. Job Aids. Performance support tools, termed Job Aids, complement learning and assist in the use of knowledge and skills at the workplace. Generally speaking, Job Aids can be informational, procedural, coaching guides, or decision-making assistants and are particularly useful for activities or procedures that aren't easy or practical to memorize and for refreshing knowledge previously learned but infrequently used.
7. Speaking with Visuals People think in images and pictures. Instruction on "people skills" strengthened by photo quality illustrations of people modeling the behaviors bridges the gap between human and computer interaction.
8. Skill Simulations. Skill Simulations extend the learning advantages of Role Play into larger, more complex experiences. Skill Simulations are expanded business simulations designed to give learners an opportunity to practice new skills in realistic work situations. Learners practice these skills by navigating through different scenarios in which they encounter a variety of business problems. As in real life, learners have the opportunity to select different courses of action, and the scenario unfolds according to the learner's choice. Events such as telephone calls, meetings and interruptions add to the reality of each scenario.

C. Conclusion

Considering the fact that during the last decades in society the perceived importance of soft skills has increased significantly, it is of high importance for everyone to acquire adequate skills beyond academic or technical knowledge. This is not particularly difficult. Once a shortcoming in a certain area of soft skills has been identified at one self, there are numerous ways of rectifying such a deficiency. Educators have a special responsibility regarding soft skills, because during students' university time they have major impact on the development

of their students' soft skills. Soft skill through e-learning is one of the way to shaping student soft skill.

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ASSESSMENT OF SOFT SKILL IN PROJECT-BASED LEARNING USING FUZZY GRADING SYSTEM

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Abstract

Contemporary Information Systems graduates will be more marketable in the workplace upon graduation if they have combined competencies in both technical and soft skills: interpersonal communication, teamwork, time management, planning and organizational skills.

Project-based learning can be used to incorporate soft skill competencies with technical skills. Project-based learning (PjBL) is one of the methods grounded in constructivism by supporting student engagement in problem-solving situations. Students in a project-based learning environment deal with real-life problems, which may result in permanent knowledge. Assessment is an integral part of PjBL. As teachers plan projects, they determine how to measure student learning-both along the way and at the project's end. Evaluations should focus on ongoing demonstrations of what students are learning and how well they can communicate it. However, it sometimes happens that the assessment criteria and their corresponding weights are solely determined by the lecturers in charge. This may reduce the interest of students' participation and lower the quality of their learning.

This paper presents an integrated fuzzy grading system approach to assess the outcomes of project based learning. It uses fuzzy sets principles to represent the imprecise concepts for subjective judgment and applies a fuzzy sets method to determine the assessment criteria and their corresponding weights. Based on the commonly agreed assessment criteria, students' learning outcomes are evaluated on a fuzzy sets. The proposed fuzzy grading system approach incorporates students' opinions into assessment and allows them to have a better understanding on the assessment criteria. It aims at encouraging students to participate in the whole learning process and providing an open and fair environment for assessment.

Keywords : Assessment, Soft Skill, Project Based Learning, Fuzzy Grading System

A. Introduction

The lecturer's role changes as well. The lecturer is no longer the center of attention as the dispenser of information, but rather plays the role of facilitator, setting project goals and providing guidelines and resources, moving from student to student or group to group, providing suggestions and support for student activity. A large number

of research studies are conducted and various teaching and learning strategies are proposed to answer the question, “How can we teach more effectively?” This process is started with the behaviorist approach, continued with cognitivism, and ended up with constructivist approach for the time being. Constructivism gained attention for several reasons, such as learner-centered approach and active participation of students. In classes where constructivist approaches are implemented, students have a chance of learning by doing, enhancing their critical skills, and shaping their learning process by being active participants.

Project-based learning is one of the methods grounded in constructivism by supporting student engagement in problem-solving situations. Students in a project-based learning environment deal with real-life problems, which may result in permanent knowledge. Project-based learning is not just a way of learning, but a way of working together. If students learn to take responsibility for their own learning, they will form the basis for their way. They will work with others in their adult life. So, project-based learning and the construction of artifacts enable the expression of diversity in learners, such as interests, abilities and learning styles. We emphasize project-based learning because it is such an essential part of the thinking behind technical vocational of education reform. Project-Based Learning offers many advantages and challenges when implemented in the SMK. Purnawan (2007) found that the project based learning in technical education increasing student such as soft skill as motivation, student more critical, more cooperate and advances to communication ability.

Based on literatures, assessment is an integral part of PjBL. As lectures plan projects, they determine how to measure student learning-both along the way and at the project's end. Evaluations should assess performance both individual and group work and represent multiple formats, such as written work (formal assignments and informal journal entries), observations (of group and individual activities), presentations, informal discussions and questions, and the final media product. A variety of people-students, teachers, and community members-can provide feedback. Assessment of project-based learning can also be a challenge. Because learners are constructing artifacts that represent their learning, it is important to provide feedback that is constructive and authentic to the objectives of the assignment.

However, the difficulties associated with translating a set of scores into letter-grades are discussed. A novel method for automating this process, the Fuzzy Grading

System, is developed and compared to traditional practices. Letter-grades are recognized to be Fuzzy descriptors of students' performance. Thus, operations aimed at defining letter-grade boundaries are naturally carried out in the context of fuzzy set theory and logic. The Fuzzy Grading System utilizes students' and instructor's performance measures in order to fuzzy set of collectively approved, a priori fuzzy grades, so as to produce a "fair" mark distribution. The validity of grades is increased by compensating for factors that are not directly accessible to simpler, traditional grading methods.

B. Conceptual Framework

Project-based learning, or Group Investigation (Sharan, 1998) is a form of cooperative learning that contextualizes learning by presenting learners with problems to solve or products to develop (Katz, 1994). In another definitions Project-Based Learning is a comprehensive instructional approach to engage learners in sustained, cooperative investigation (Bransford & Stein, 1993). Project-Based Learning is a teaching and learning strategy that engages learners in complex activities. It usually requires multiple stages and an extended duration--more than a few class periods and up to a full semester. Projects focus on the creation of a product or performance, and generally call upon learners to choose and organize their activities, conduct research, and synthesize information. According to current research (Thomas, http://www.ed.gov), projects are complex tasks, based on challenging questions, that serve to organize and drive activities, which taken as a whole amount to a meaningful project. They give learners the opportunity to work relatively autonomously over extended periods of time and culminate in realistic products or presentations as a series of artifacts, personal communication, or consequential tasks that meaningfully address the driving question. PBL environments include authentic content, authentic assessment, teacher facilitation but not direction, explicit educational goals, collaborative learning, and reflection.

Authentic learning demands that students actively solve problems while working together. Authentic learning can be utilized in the VET curriculum through project-based learning. Authentic learning experiences foster a student's capacity to eventually contribute positively to society. The soft skills in project based learning that are

incorporated into the course included written and oral communication, collaboration, team skills, presentation skills and analytical and critical thinking skills.

Authentic assessment is one of the components of project-based learning, this means; 1) Assessment activities not only capture student understanding of concepts and subject matter, but they also document and promote the development of "real world" skills which students need outside the classroom and beyond the school environment. For example, teachers may look for evidence of good collaboration skills, the ability to solve complex problems and make thoughtful decisions, the ability to give effective and articulate presentations, etc. 2) Assessments reflect student learning over time, and not just student performance on a piece of work or a final exam. The student's progress is documented throughout his/her work on a project providing the teacher with examples of growth and learning. 3) In PBL, assessment takes place in a context familiar to the student. Assessment is embedded in everyday activities that are familiar to all students--at the same time assessment helps to extend everyday activities and foster learning. 4) Assessment standards are well known to the students. Some classes will create rubrics for evaluating student work thus making students co-creators of their own evaluation criteria. Other classes will use external criteria, but it will be explained to the students, and they will use the same criteria the teacher and outside evaluators use to assess their own and each other's work. 5) Assessment helps build real mastery of a subject by allowing students to revise their work and incorporate new understandings and constructive feedback. Assessment activities also require students to articulate and explain subject matter, their decisions, their initiative, etc. to those doing the assessing. 6) Authentic assessment also requires an authentic audience. This can be classmates, a particular group for whom the project was designed, a mentor, adults or students who have an interest in the project subject, or members of the community (including potential employers, parents, and educators) who have an interest in what the student is learning (http://www.pblmm.k12.ca.us.htm).

According to above text, assessment in PjBL need to collect and act on information that will help students improve as they proceed, and they need to have measures that show what students learn overall. Function of assessment in project-based learning are;

1) Assessment helps teachers develop more complex relationships with their students by providing concrete pieces of work for students and teachers to discuss, as well as opportunities for formal and informal conversations about the work. Similarly,
2) Students work closely with each other providing and receiving feedback on their projects; and often mentors, parents, and community members will be involved with the project development or have an interest in the finished product.
3) Assessment helps students answer the questions "Am I getting it?" and "How am I doing?" Early and frequent feedback from the teacher, peers, and mentors will also provide students with the practice and the knowledge to better assess themselves and find answers to these questions. Assessment can help make content connections clear. Journals and Design/Idea Books can be used by teachers to prompt students to make connections between their research and designs and the relevant subject matter. Teachers and students can both use such activities to take note of concepts and connections to carry forward to the next stage or activity.
4) Assessment engages students directly in the evaluation of their own work. Student reflections should be more than just commentary on what the students have done--they should used by students to highlight what they have learned, explain important decisions they have made, and articulate plans for incorporating feedback and moving forward.
5) Assessment helps teachers plan their next steps. By documenting and reviewing student progress, eliciting answers to specific questions, and checking for conceptual understanding, teachers gain insights into what the students are learning and what needs to be addressed before moving on.
6) Assessment helps students plan their projects. Class presentations, design reviews, conversations with teachers and group members, and teacher responses to journal and design/idea book entries, all give students valuable feedback to help them plan their next step.

Lecturers in project based learning must do plan their assessments. Assessment planning is a natural part of all teachers' work because; 1) Learning is going on all the time; one of the goals of assessment is to organize learning so that it is visible and can be documented. 2) Assessment planning involves identifying what assessment activity is most appropriate in a particular situation and deciding what to look for while

observing, reading, or participating in that activity. 3) Assessment planning involves identifying what is valuable to the teacher, the school, this particular group of students, the state and region (as expressed in frameworks and standards), the parents, and other members of the community. 4) Assessments should come in multiple forms. Assessment activities need to be diverse enough to include all students regardless of their backgrounds and skills, yet specific enough to provide relevant and meaningful feedback to all involved.

Due to the nature of student-centered learning, criterion-referenced assessment methods are commonly used for evaluating students' outcomes. The criterion-referenced assessment method directs students' attention to their performance with respect to the tasks they undertake. However, in the current practice, of a student-centered learning environment, the lecturers in charge are solely responsible for determining the assessment criteria and their corresponding weights. This may reduce the students' autonomy in the whole learning process and lower their learning quality. Based on the proposed basic set of assessment criteria, it uses the fuzzy set method for students and lecturers to vote for their preferred assessment criteria. The commonly agreed criteria are then used to evaluate the students' outcomes on a fuzzy grading scale. The proposed criterion- referenced assessment method consists of the following four steps (Jian Ma and Duanning Zhou,2000) :

Step 1) generation of the basic set of assessment criteria;

Step 2) selection of the assessment criteria from the basic set of assessment criteria;

Step 3) determination of the corresponding assessment criteria weights;

Step 4) evaluation of the students' outcomes using the agreed criteria.

The proposed assessment method aims at encouraging the students to participate in the whole teaching, learning and assessment processes. It is to provide an open and fair method for assessment.

Fuzzy set theory has been widely used to solve problems in the evaluation and assessment tasks (Jian Ma and Duanning Zhou,2000) It is an efficient and effective method to represent the uncertainty and fuzzy terms in the assessment environments. In this paper, a fuzzy set is a class of objects with a continuum of membership grades. A membership function, which assigns to each object a grade of membership, is associated with the fuzzy set. Usually, the membership grades are in [0,1]. When the grade of

membership for an object is one, it means that the object is absolutely in that set. When the grade of membership is zero, it means that the object is absolutely not in that set. Borderline cases are assigned to the values between zero and one. Precise membership grades do not convey any absolute significance. They are context-dependent and can be subjectively assessed. Fuzzy set method has been applied in the assessment process. Echauz and Vachtsevanos (1995), presented a fuzzy grading method that utilizes students' and instructor's performance measure to produce a 'fair' mark distribution.

In a project based learning environment, students are encouraged to play an active role in evaluating their learning outcomes. Thus, the proposed assessment method should also support to assess all performance. In formulating a grading system, it is necessary to recognize what considerations should be, directly or indirectly, part of the grading policy. In this section, we explore class performance and ability and instructor's technique (Echauz and Vachtsevanos (1995):

Class' Performance and Ability	Instructor's Technique
1. ***Absolute Performance:*** Each student's score is compared to a pre established model of what "good" or "poor" performances signify. The fixed grade-boundaries method is based on this type of performance only.	1. ***Teaching Effectiveness:*** The instructor should lucidly expose the course subject. If he or she does a poor job of guiding students through the learning process, how fair is it to compare their grades with those of students who learned from a skillful teacher?
2. ***Relative Performance:*** Each student's score is compared to others' in the same class. The method of equating top score to 100% is based on this type of performance only. All other methods listed in Section I assign different weights to both absolute and relative performances.	2. ***Tests' Validity:*** A test is said to be valid if it "tests" what the instructor really intends. One aspect of test validity is balance of difficulty levels. A good way of designing well balanced tests is to recognize Bloom's hierarchy of cognitive complexities **,** and include questions from the various categories. In general, valid tests can be prepared by keeping track of discrimination ratios. These correlation factors measure how effective each question is in being correctly answered by students who really know the tested subject, and being incorrectly answered by those who do not master it. Questions with high discrimination ratios guide the instructor in the design of future test questions.
3. ***Score-Clustering:*** Gaps in the	3. ***Tests' and Scoring Reliability:*** A test

score distribution often arise as a matter of chance, and do not necessarily provide natural points of division between discrete levels of ability**.** However, given a scores' histogram and a constrained range of mobility for the grade-boundaries, it is reasonable for the instructor to visually place the boundaries at points that separate clustered groups of scores, if such points are within allowed ranges. Thus, local score-clustering provides a rule of preponderant alternative in the grading process.	is said to be reliable if it consistently measures its goal. A student taking an unreliable exam at two different times, is likely to score disparately. One source of unreliability in tests is vagueness in questions, whence multiple interpretations give rise to different answers. Another source of unreliability arises in connection with the human scoring process. Are the resulting scores reliable measures, or are they just random numbers? If the question being scored is of the free response type, the instructor is likely to be inconsistent by virtue of differences in mood and other human factors. Past correlations between free-response and objective scoring can provide a basis for determining how reliable the instructor's subjective scoring is. To this end, Spearman rank-order correlation coefficients are expedient.
4. ***Outside Performance:*** A group with exceptional past academic performance is expected to fulfill course requirements better than a group whose past performance is poor. Current GPA's can serve as a measure of expected performance. However, their use in grading can perpetuate low GPA's of potentially good students who performed poorly in the past (or the contrary for high GPA's).	4. ***Tests' Scope and Duration:*** Due to the breadth-depth learning trade-off, too broad a test's scope can lead to impaired students' performance. Similarly, students may not be able to demonstrate what they have learned in the highly stressful, artificial situation created by a poorly timed test. Good students can usually do well on comprehensive, difficult exams, provided they are given a reasonable period of time.

This paper just to explore assessment soft skill in project based learning using fuzzy grading system. For implemented it, we need to continued research. We suggested to use MATLAB (matrix Laboratory) soft ware, available at http://www.mathwork.com. This soft ware available toolbox fuzzy logic.

C. Conclusion

This paper presents a fuzzy set approach to assess the outcomes of soft skill in project based learning. The proposed method uses a fuzzy set method for determining the assessment criteria and their corresponding weights. The commonly agreed criteria are then used to evaluate the students' learning outcomes. A FGS system has been

developed to support the assessment method and its process. The proposed assessment method and FGS system encourages the students to participate in the evaluation of their learning. It also provides a convenient method for lecturers and students to express their opinions and to agree on the assessment criteria and the evaluation marks in fuzzy terms that are commonly used in their assessment tasks.

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A HYPOTHETICAL MODEL FOR DEVELOPING EMPLOYABILITY SKILLS STUDENT

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Abstract

The emergence of various forms of high performance work systems in a knowledge-based environment inevitably has major implications for human resource and skill development. The higher education, especially higher vocational education, must respond the changes in industry and develop the workforce skills required by the new economy system. The need to improve and development the employability skills student has been an issue across all phases of education. This paper discussed issues for developing employability skills for higher vocational education students.

Employability skills can be viewed as an output of learning process and then gives affects to graduate employability. Employability is a process of learning that leads to individuals gaining and retaining fulfilling work. Employability development has three focuses: (1) development of employability attributes; (2) development of self-promotional and career management skills; and (3) willingness to learn and reflect on learning. Some authors express, several factors can impact on employability such as: pedagogic process, self-reflection by the student, articulation of experiences and abilities, understanding of knowledge, skilled practices, efficacy beliefs, and metacognition.

Based on the literature review, the developing employability skills student influenced by learning system and instructional strategies, learning environment, and student self-concept. These factors as a determinant variable in enhancing students' employability skills. In hypothetical model, learning system and learning environment are identified as independent latent variable, self-concept as moderating variable. Meanwhile, employability skills identified as dependent latent variable. Learning system and learning environment is hypothesized have direct influence to enhancing graduates' employability skills, and have indirect influence through self-concept.

Keywords: hypothetical model, employability skills, learning system, learning environment, self-concept, vocational education.

A. Introduction

The movement towards enhanced importance for knowledge as a driver of economic growth is widely seen as a response to the processes of globalization, technological change and the intensification of international competition. OECD

publications state that knowledge as the main driver of growth, wealth creation and employment with learning, skills enhancement, innovation and enterprise as the cornerstones of the new economy (Cairney, 2000:5; Kearns, 2001). The phrase 'knowledge based economy' has become shorthand for the emerging set of economic activities, structures and arrangements that are the result of these global processes.

Some view the knowledge economy as synonymous with the shift into a new high skills, high performance, mode of working, reflecting a belief in a workplace change led response to global pressures (Kearns, 2001:22; Rojewski, 2002; Sanders & Grip, 2003; Eposto & Meagher, 2007; Zuhal, 2008). Current thinking is that the skill profile needs of a high performance work organization can no longer be served by skills needs derived from traditional conceptions of work. The skill requirements of emerging technology and innovative work organization require a new combination of content skills, process skills, cross-functional skills, social skills, self-managing skills and problem solving skills.

The emergence of various forms of high performance work systems in a knowledge-based environment inevitably has major implications for human resource and skill development. It is mean, the higher vocational education must respond the changes in industry and develop the workforce skills required by the new economy system. Vocational education must design the curriculum to prepare students to acquire an education and job skills, enabling them to enter employment immediately upon high graduation.

B. The Concept of Employability Skills

Employability skills are defined as "transferable core skill groups that represent essential functional and enabling knowledge, skills and attitudes required by the 21st century workplace.… necessary for career success at all levels of employment and for all levels of education" (Overtoom, 2000:2). Employability skills are those basic skills necessary for getting, keeping, and doing well on a job (Robinson, 2000:1). These are the skills, attitudes and actions that enable workers to get along with their fellow workers and supervisors and to make sound, critical decisions. Unlike occupational or technical skills, employability skills are generic in nature rather than job specific and cut across all industry types, business sizes, and job levels from the entry-level worker to the senior-most position. The Enhancing Student Employability Co-ordination Team

(ESECT) states the employability as "a set of achievements – skills, understandings and personal attributes – that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" (Yorke, 2006:8).

C*ore skills*, *key skills*, *transferable skills*, *general skills*, *non-technical skills*, *soft skills*, *essential skills* are all terms that have been used synonymously to define the employability skills needed most in today's workforce. While the semantics of the term used do exist, there is no doubt that there is a need for such skills in the workplace (NCVER, 2003:2). Cassidy (2006:508) express employability skills as relevant skills with various work environments and profession. Ogbeide (2006:1) express that employability skills are skills that are basic and generic in nature, but very valuable in assisting every person entering the workforce.

C. The Employability Skills Elements

The Secretary's Commission on Achieving Necessary Skills (SCANS) (1991) published What Work Required of Schools: A SCANS Report for America 2000. SCANS research verifies *workplace know-how* defines effective job performance today. This report identifies five competencies and a three-part foundation skills and personal qualities that lie at the heart of job-performance. The five competencies were determined to be related to functional skills, included: resources, interpersonal skills, information, systems, and technology. A three-part foundation skill: basic skills, thinking skills, and personal qualities. Resource, the ability to identifies, organizes, plans, and allocates resources. Interpersonal skills, the ability to work with others. Information, the ability to acquire and utilize information. System, the ability to understand complex inter-relationships. Technology, the ability to work with a variety of technologies. A basic skill includes reading, writing, listening, speaking, and mathematics (arithmetical computations and mathematical reasoning). Thinking skills includes creative thinking, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning. A personal quality includes individual responsibility as well as self-esteem, sociability, self-management, and integrity.

In Australia, the focus on generic skills first began in the 1980s and was re-invigorated in the late 1990s due to industry-led initiatives. The Australian Chamber of

Commerce and Industry, and the Business Council of Australia (ACCI/BCA) undertook a comprehensive study of the skills commonly required by both new and existing employees to work successfully in organizations. They derived a set of key skills, which they called employability skills. This is industry's preferred term for this set of generic skills. The report defined employability skills as:

> … skills required not only to gain employment, but also to progress within an enterprise to achieve one's potential and contribute successfully to enterprise strategic directions. Employability skills are also sometimes referred to as generic skills, capabilities or key competencies (Australian Chamber of Commerce and Industry & Business Council of Australia 2002, p.3)

The report also proposes an Employability Skills Framework, which is made up of eight major skill groups and a variety of personal attributes. Personal attributes are term used to describe a set of non skill-based behaviors and attitudes that employers felt were as important as the employability skills and other technical or job-specific skills. The personal attributes included loyalty, commitment, honesty and integrity, enthusiasm, reliability, personal presentation, commonsense, positive self-esteem, sense of humor, balanced attitude to work and home life, ability to deal with pressure, motivation, and adaptability. The key skills identified in conjunction with the personal attributes to make up the Employability Skills Framework are: communication skills, team work skills, problem-solving skills, initiative and enterprise skills, planning and organizing skills, self-management skills, learning skills, and technology skills.

The Conference Board has published Employability Skills 2000+ (Conference Board of Canada, 2000). The Employability Skills 2000+ comprise with fundamental skills, personal management skills and teamwork skills. Fundamental skills are the skills needed as a base for further development, included: communicate, manage information, use numbers, and think & solve problems. Personal management skills are the personal skills, attitudes and behaviors that drive ones potential for growth, included: demonstrate positive attitudes & behaviors, be responsible, be adaptable, learn continuously, and work safely. Teamwork skills are the skills and attributes needed to contribute productively, included: work with others, and participate in projects & tasks. Employability Skills 2000+ comprised 56 set specific skills and attributes.

D. Graduate Employability Development

The employability of graduates' has become an aim that governments around the world have, to varying extents, imposed on national higher education systems (Yorke, 2006:3). The higher education system is subject to governmental steer, one form of which is to give an emphasis to the enhancement of the employability of new graduates. Indonesian government expected to the vocational educations in preparation for human resource to overcome unemployment problems. Preparation of human resource is part of education and training process. Harvey et.al. (2002) conceptualized a model of graduate employability development. The factors linking together the development of graduate attributes and the obtaining of an appropriate job are summarized in Figure 1.

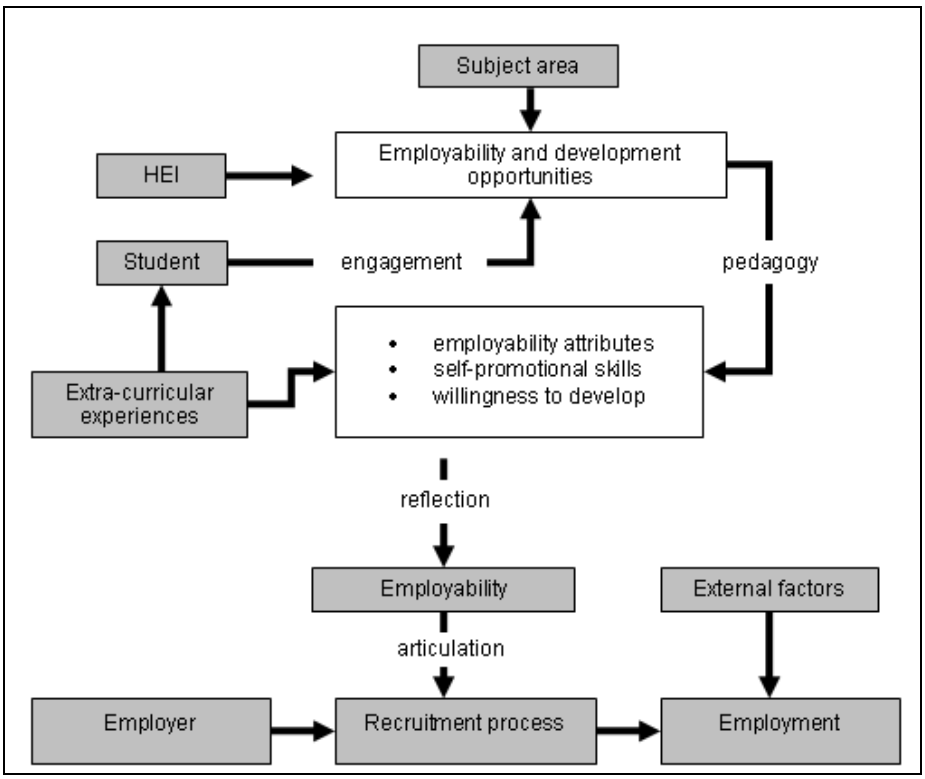

Figure 1. A Model of graduate employability development (Harvey et.al, 2002:18).

Based on Fig 1, employability development has three focuses: (1) development of employability attributes; (2) development of self-promotional and career management skills; and (3) willingness to learn and reflect on learning. Employability is a process of learning that leads to individuals gaining and retaining fulfilling work. Three core processes impact on employability: first the pedagogic process that encourages development; second, self-reflection by the student; and third, articulation of

experiences and abilities. Employability development opportunities are affected to some extent by the subject discipline of the graduate. Some programme areas tend to be more active than others in promoting employability, either because they more readily lend themselves to developing particular employability attributes, or because of a need to ensure engagement with the world of work. Similarly, engagement in employability development, reflection and articulation are often easier for students in vocational areas.

Meanwhile, *Skills Plus Project* takes the view that employability involves promoting a complex mix of outcomes. It claims that 'highly employable people need understanding, skills of various kinds, efficacy beliefs, and metacognitive fluency — USEM (Yorke & Knight, 2006:5).

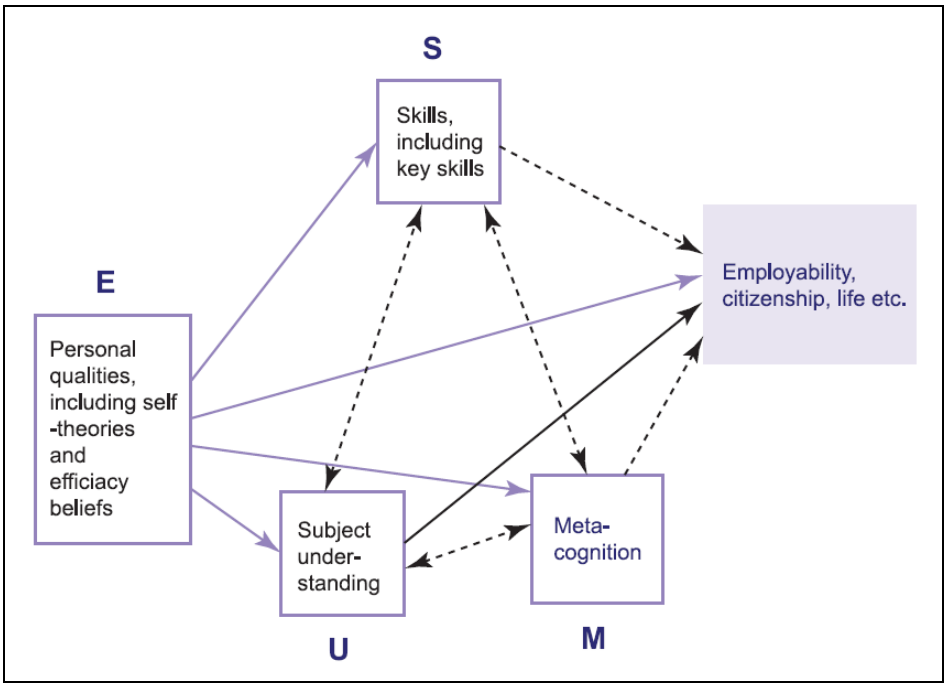

Figure 2. The USEM account of employability (Yorke & Knight, 2006:5).

Understanding is, of course, a key outcome of higher education and needs no further justification here. 'Skills' here is taken to mean 'skilled practices' or 'skilful practice' with the implication that this hinges on awareness of, and responsiveness to, the context or in some usages of so-called 'key skills'. Efficacy beliefs, the extent to which students feel they might able to make a difference. Metacognition is seen as subsuming elements of 'learning how to learn'; of reflection in, on and for practice; and a capacity for self-regulation. This model is a useful starting point for identifying what is important in enhancing student employability, it does not easily facilitate specific

curriculum auditing. Yorke & Knight (2006) outline four main strategies currently in use within higher education for embedding employability in the curriculum. These include: embedding employability through the whole curriculum; embedding employability in the core curriculum; incorporating employability-related modules within the curriculum; and

work-based or work-related learning within or in parallel with the curriculum.

E. Hypothetical Model for Developing Employability Skills

The need to improve and development the employability skills of the workforce has been an issue across all phases of education. The employability of graduates' has become an aim that governments around the world have, to varying extents, imposed on national higher education systems. Employability skills can be viewed as an output of learning process and then gives affects to graduate employability. The efforts to develop employability skills student depend on learning process. Learning process depend on several factor, such as learning system and instructional strategies, learning environment, and student characteristic. Student characteristics identified by student self-concept. (Harvey, 2003; Smith & Comyn, 2003; Denton, 2003; Vaatstra & Vries, 2007).

Learning system defined as form of learning activities and instructional strategies approach, including academic and non-academic. The development of employability skills have the continuum characteristic, through activities in-campus and outside campus. Cleary et al. (2007:37) stated that students' employability skills could be developed through academic tasks, fieldwork, industry-based learning, sandwich program, co-operative learning, and work-integrated learning. Smith & Comyn (2003:10) stated that development of employability skills can be done through various activities like job experience model, induction program, and project based learning and can be done in various place. Research evidence from Australia and Europe suggests that contemporary VET pedagogy is becoming more: learner-centered, work-centered, and attribute-focused (Chappell, 2003:3). The attributes are wide ranging, including for example basic skills such as literacy and numeric, interpersonal skills such communication and team work and personal attributes such as learning to learn, self-management and independent problem solving.

Learning environment refers to social, psychology and pedagogy context where learning to do. Learning environment can influence academic achievement and behavior of student. Appropriate use of managed learning environments can encourage new pedagogical approaches to employability. Employability involves promoting a complex mix of outcomes. Highly employable people need understanding, skills of various kinds, efficacy beliefs, and metacognitive fluency. This view of employability priorities pedagogy. It is compatible with many descriptions of good learning in general and is not just to do with learning related to work (Harvey, 2003:19). Optimal learning environment can assist for developing work-ready graduates for the workplace (Denton, 2003:1). This resulted in the creation of a highly developed flexible learning environment emulating the workplace and incorporating learner-centered, self-directed, flexible learning methodologies to encourage students to take progressively more responsibility for, and control of, their learning.

Young (1998:33) stated that one aspect in student life can be successful in the future is self-concept. Self-concept has an important role in determining success someone in the world of work. Someone with highly self-concept has been able to succeed in the future career. Self-concept is behavior fundamental of someone, therefore self-concept holds a real important role in determining success of individual. With positive self-concept, someone can be seen the self-strength and self-weakness, possessed of suitably self-esteem, and clearly self-identity, so that someone would be sensitive to himself and environment.

Self-concept consisted of a number dimensions, but Young (1998:33) in his research only included general self-concept and academic or school self-concept. The general self-concept scale describes the student's feelings about himself/herself. There are both negative and positive statements related to success and failure in life. The school self-concept scale measures the student's perceptions about their academic ability and potential to be a success at school. Academic self-concept extensively has been showed has relationship with result of student learning. Besides both self-concept variables above, necessary to developed a self-concept variable relating to work (occupational self-concept). Cotton (2001:8) believes that development self-concept can assist someone to access the job market, and guarantees the student well prepared to enter the workplace. Someone with positive occupational self-concept will be able to perform about work perception appropriate for her.

Based on the literature review above, has been identified learning system, learning environment and self-concept as determinant variable in enhancing graduates' employability skills. In hypothetical model, the author propose a model for developing employability skills student as in Figure 3.

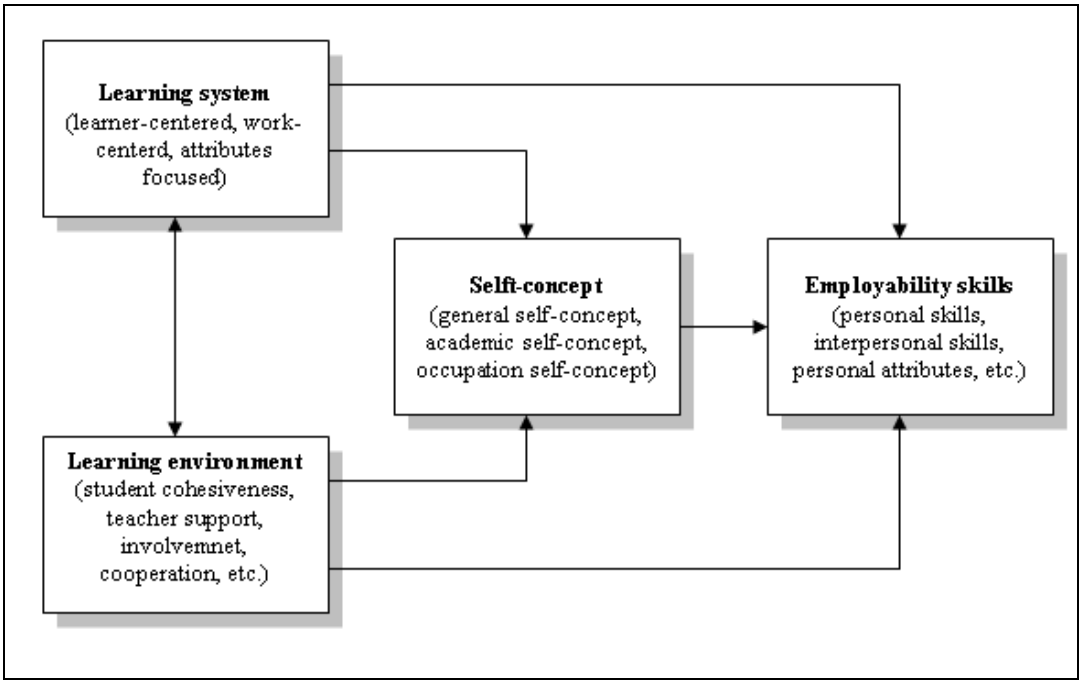

Figure 3. Hypothetical model for developing employability skills student.

In this hypothectical model, learning system and learning environment are identified as independent latent variable, self-concept as moderating variable. Meanwhile, employability skills identified as dependent latent variable. Learning system and learning environment is hypothesized has direct influence to enhancing graduates' employability skills, and has indirect influence through self-concept.

F. Conclusion and Recommendation

Employability skills can be viewed as an output of learning process and then gives affects to graduate employability. Three core processes impact on employability are: the pedagogic process that encourages development, self-reflection by the student, and articulation of experiences and abilities. The author identified learning system, learning environment and self-concept as determinant variable in enhancing graduates' employability skills. Learning system and learning environment is hypothesized has

direct influence to enhancing graduates' employability skills, and has indirect influence through self-concept.

Employability is a manifestation of complex learning. The author suggget in developing curriculum vocational education should focus on assisting students can develop employability skills. Curriculum modifications should be made to address the employability skills attributes. The higher vocational education institutions should be collaborate with industry professionals in an effort to equip future graduates with the appropriate skills needed for success in the workplace.

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IMPROVING TTVET STUDENT COMPETENCY ON COMPUTER PROGRAMMING USING ENGLISH IN TEACHING LEARNING PROCESS

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Abstract

This research purposed to explore English teaching-learning model suitable to Computer Programming course and the effect of the teaching-learning model to motivation, understanding, and final grade of the students of Teacher Training in Vocational Education and Technology (TTVET), i.e. Electrical Engineering Education Study Program of Faculty of Engineering of Yogyakarta State University.

This research was classroom action research. The model used in this research was model of Kemmis and McTaggart that consisted of planning, action, and reflection steps. The performance measured in this research were concordance of teaching-learning process with the plan, students' motivation to attend the course, students' understanding to the course material, and the percentage of students achieved grade B or above. Instruments used in this research were observation form for measuring those performances.

The findings were: the English teaching-learning process conducted in this research was not optimal yet in the aspects of explaining course material, varying teaching-learning process, managing class/lab, and enhancing students' motivation. Nevertheless teaching-learning process could improve students' motivation, understanding, and percentage of final grade of B or above more than 70%.

Keywords: computer programming competency, English teaching – learning process

A. Introduction

Electrical Engineering Education study program is one of TTVET study programs conducted in Faculty of Engineering of Yogyakarta State University. Computer Programming is a mandatory course for all students of Electrical Engineering Education study program of Faculty of Engineering of Yogyakarta State University. This course has 2 credit hours. This course is conducted in the second semester. Before attending this course, in the first semester the students took Introduction to Computer course. Introduction to Computer course introduces computer hardware, operating system, and fundamental of computer programming in Pascal or C++ language.

Computer Programming course as continuation of Introduction to Computer course introduces Delphi language. Delphi is visual programming language under Windows that is using high level language, i.e. Pascal language as compiler. The existence of Delphi language can not be dissociated with Turbo Pascal that was launched by Borland International Incorporation in 1983 (Faesal, 2009).

High level programming language uses English like language. On the other side, high level language literatures were written in English. That is why English competency is a good predictor of computer programming competency. Improving students' English competency logically will enhance their computer programming competency, and finally will improve their Computer Programming achievement.

Before this research was conducted, Computer Programming course in Electrical Engineering Education study program of Faculty of Engineering of Yogyakarta State University was executed using Bahasa Indonesia. This condition could become obstacle for students in understanding programming language and in the end will contribute to the students' lower achievement in the Computer Programming course. The solution of this problem should be tried, i.e. by conducting English teaching-learning process in Computer Programming course.

The purpose of this research was to explore English teaching-learning model suitable to Computer Programming course and the effect of the teaching-learning model to the students' motivation, their understanding, and their final grade.

B. Computer Programming Teaching-Learning Process Using English

Programming language is a language used for making computer program. Computer will process the given data based on commands written in the computer program. The commands should be understood by computer using a certain structure and keyword (Akib, 2009).

Based on the levels, programming language can be devided into three levels, i.e. low level language, middle level language, and high level language. Low level language is the first generation of programming language. This programming language is very difficult to understand because the instruction is in machine language. Usually the one who understands the program is only the programmer because the content of the program is machine codes.

Middle level language is a programming language consists of instructions like dayly language. Nevertheless this language is difficult to understand because it uses many abbreviations like “STO” means STORE and “MOV” means MOVE. Assembly language is an example of middle level language. The last one, high level language, is a programming language characterized with well-structured and easy to understand because of using dayly language (English). Examples of this language are Delphi, Pascal, SQL, Perl, Phyton, Basic, Visual Basic, C, C++, PHP, etc.

English teaching-learning process for students using non-English as dayly language needs certain models in order for the students can accept the materials. One of the model is immersion model. Immersion model initially introduce in Canada (Roberts, 1995). This model improved bilingual education successfully. According to Roberts (1995), immersion model does not have clear definition, but can be implemented in bilingual teaching-learning process. Johnson and Swain (1979), immersion is a type of education that uses bilingual.

Johnson (2007) stated that based on proportion of first and second language usages, immersion model can be classified into full or total immersion and partial immersion. Immersion model is full immersion if 100% of teaching-learning process is using second language. Immersion model is partial immersion if less then 100% teaching-learning process is using second language. According to Roberts (1995), outcome of the two immersion models has no significant differences. This research is using partial immersion model.

C. Method

This research was conducted in 2009 in the laboratory of Data Communication of Electrical Engineering Education Department of Faculty of Engineering of Yogyakarta State University. The research subjects were students of semester II of the study program. The number of subjects were 20 students, i. e. total students of the Computer Programming course.

This research was classroom action research. The research was using model of Kemmis and Mc Taggart (1990) in three cycles. Every cycle consisted of: planing, action and observation, and reflection. Because of limited time avalable, this research was conducted in three cycles.

Planning started with identifying problem and action planning. The action was planned based on theory. Observation was conducted to measure the correctness of the action and the effect of the action to motivation, understanding, and final grade of the students. Reflection was conducted to evaluate, to correct, and to modify the action in order to reach the optimum action and effect.

Performance indicators should be reached were: a) teaching-learning process is on the track with the plan, b) students' motivation is good, c) students' understanding with the teaching material is high, and d) percentage of students with grade B or above is more than 70%. Instruments used to measure the preformace indicators were observation sheed.

Observation sheet of correctness of teaching-learning process was constructed based on observation sheed of Micro Teaching of Unit of Field Experience Program of Yogyakarta State University (UPPL, 2009). Students' motivation observation sheet had four indicators: a) number of students coming to the course on time, b) number of students asking question, c) number of students discussing job with their friends, and d) number of students not leaving the laboratory immediately.

Observation sheet of students' understanding with the teaching material consisted of five indicators, i. e. a) number of students doing job correctly, b) number of students finishing job on time, c) number of students doing job with improvisation, d) number of students doing job without lecturer help, and e) number of students doing job without friends help. Observation sheet for measuring Computer Programming competency based on practical process and product, i. e. speed of work, correcness of procedure, and correctness of computer program.

Data of this research were analyzed using quantitative descriptive statistics by counting frequency, mean, and diplaying graphic. Using a certain category, the quantitative data changed into qualitative data.

D. Findings and Discussion

1. Correctness of Teaching-Learning Process with the Plan Action

The correctness of teaching-learning process with the plan action of the three cycles has been observed by colaborator is shown in Figure 1. The sclae of the figure is based on the observation sheet, i.e. minimum score is 1 and the maximum score is 4 and categorized as not good at all, not good, goog, and very good.

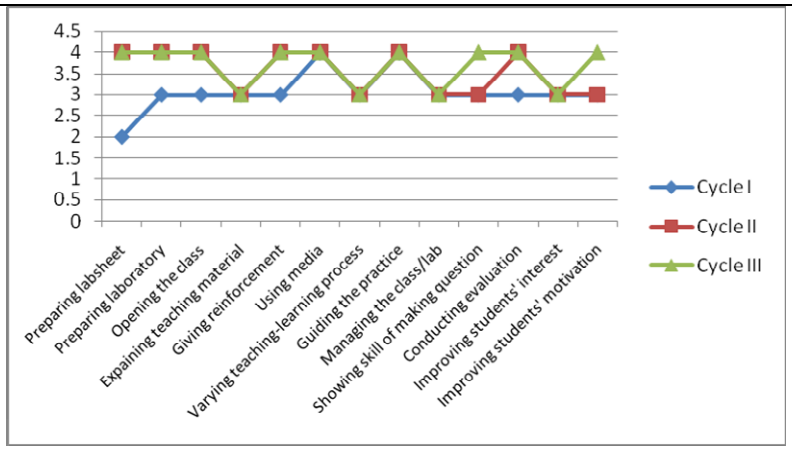

Figure 1. Correctness of Teaching-Learning Process

Figure 1 shows that in the first cycle preparing labsheet got score 2 and it is categorized as not good. This was because it was late to distribute the labsheet to the students. Using media got score 4 or very good. This was because the media (LCD projector) is installed permanently in the laboratory and connected to the lecturer computer and lecturer computer is connected to student computer in computer network in the laboratory. Guiding the laboratory activity/practice also scored 4 or very good. This was because the course had been established long before this research conducted. Another aspects of teaching-learning process were scored 3 or categorized good.

In the second cycle the were improvements in the aspect of preparing labsheet, preparing laboratory, opening the class, giving reinforcement, and conducting evaluation compared to those conditions in the first cycle. In the third cycle there were improvements in aspect of showing skill of making question and imrpving students' motivation copared to those aspects in the second cycle.

2. Students' Motivation Attending The Course

Students' motivation to attend the course in all three cycles is shown in Figure 2. The figure shows that in the first cycle the percentage observed indicators respectively as follows: students coming on time is 90%, students asking question is 75%, students discussing job with their friend 35%, and students not leaving not leaving the lab although time is up 30%.

In cycle two, the percentage of the above indicators are: students coming on time is 100%, students asking question is 65%, students discussing job with their friend 45%,

and students not leaving not leaving the lab although time is up 20%. While in cycle three the percentage of the indicators are: students coming on time is 100%, students asking question is 30%, students discussing job with their friend 60%, and students not leaving not leaving the lab although time is up 15%.

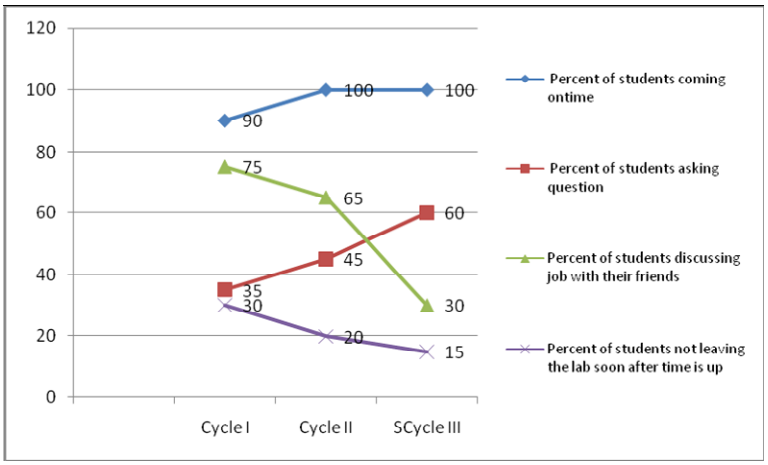

Figure 2. Students' Motivation Attending the Course

3. Students' Understanding with The Teaching Material

The students' understanding with the teaching material of all cycles in rhis research is displayed in Figure 3. In the first cycle the percentage of students doing job correctly is 80%, students doing job ontime is 70%, students doing job with improvisation is 30%, students doing job without lecturer's help is 80%, and students doing job without friends' help is 80%. Students doing job correctly, students doing job without lecturer's help, and students doing job without friends' help are categorized high, but students doing job ontime is categorized medium, and students doing job with improvisation is categorized low.

In cycle two the percentage of students doing job correctly, students doing job ontime, students doing job without lecturer's help, and students doing job without friends' help are better than those of cycle one. In cycle three the percentage of students doing job correctly, students doing job with improvisation, students doing job without lecturer's help, and students doing job without friends' help are better than those of cycle two.

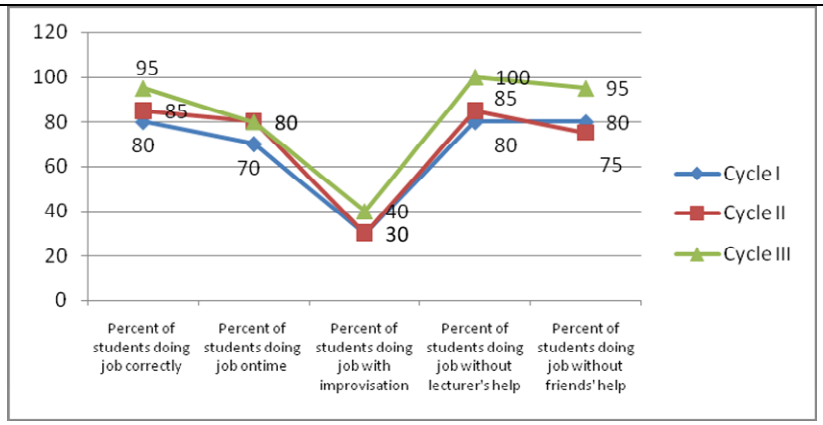

Figure 3. Students' Understanding with The Teaching Material

4. Percentage of Students Getting Grade B or Above

Practical examination conducted after the third cycle obtained grade distribution displayed in Figure 4. The figure shows that there were still students had grade less than B catecory, i.e. 25%. But all students passed and the percentage of students got grade B or above was 75%.

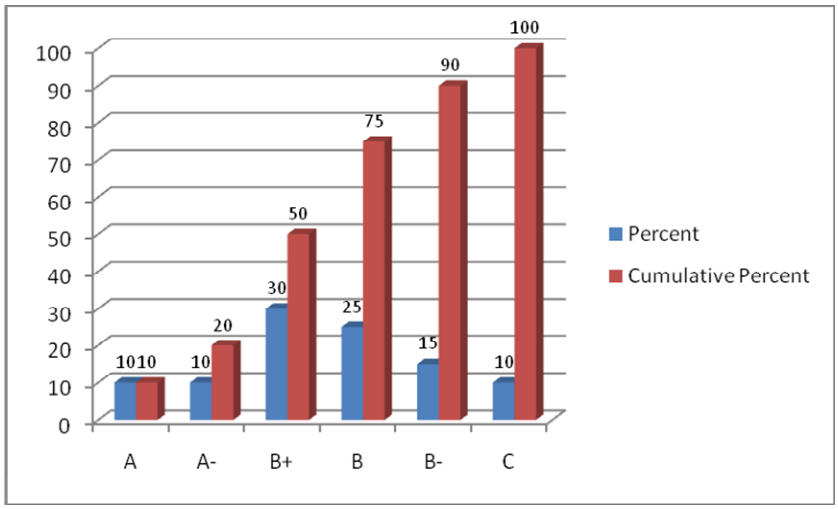

Figure 4. Students' Grade Distribution

In the future it is visible to decrease the percentage of students got grade less than B. This is because explaining course material, varying teaching-learning process, managing class/lab, and enhancing students' motivation of the English teaching-learning process of this research was not omtimal yet.

E. Conclusion and Recommendation

1. Conclusion

English teaching-learning in Computer Programming course conducted in this research was not optimal yet in the aspects of explaining course material, varying teaching-learning process, managing class/lab, and enhancing students' motivation. However the teaching-learning process could improve students' motivation, understanding, and percentage of final grade of B or above more than 70% .

2. Recommendation

English teaching-learning in Computer Programming course need to be continued because the effect on students' motivation, understanding, and percentage of final grade of B or above more than 70% is reasonable. But English teaching-learning process needs to be updated in aspect of explaining material, varying teaching-learning process, managing class/lab, and enhancing students' motivation.

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ENHANCING PERCEIVE BEHAVIOUR CONTROL AS SOFT SKILL THROUGH ADOPTING INTERNET IN LEARNING TOWARD VET

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Abstract

Belief is really needed by people who want to succeed their goal or a performing of behavior. They should analyze what makes they believe that they will reach the goal and be full of power enough to provide all resources required for manifesting the goal. Concept of the belief is called as Perceived Behavioral Control (PBC). Regarding the characteristic of that, PBC is therefore assumed to have several soft skill items which are really needed by the VET students. The role of teachers and stakeholders of VET really affect the student's acceptance for the soft skill items of PBC.

By means of observational research on several VET institutions over Special Province of Yogyakarta and through behavior target of adopting internet as learning resources, the authors intend to prove whether VET students are affected by teachers and stake holders, chief of VET institution and staff. Besides, The authors ought to discuss how to sharpen the soft skills of student especially on thinking, socializing and personalizing skill through PBC toward the target behavior.

In the end of observation, there are findings that most of VET students did not adopt internet as learning resources to dig up more relevant knowledge and understanding because there was no assignment given by teachers relating with internet. Besides, the insufficiency of facilities required to adopt internet at school also contributes on this behavior. Recommendations for this situation is giving instructional manipulations to force the students to adopt internet as learning resources and provide sufficient facilities required to adopt internet. Finally, the soft skill desired grows up on the student individual.

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Keywords : PBC, soft skill, learning, internet

A. Introduction

In the global era nowadays, VET students should keep developing technologies. It is in line with the progress of needs and daily life problem faced by people in the world. One technology in solving a problem may be widely accepted and used by people at certain time but may not in the other time where there is the more effective and efficient technology created. For instance, in the electrical engineering field to light a room more brightly, people used to custom tube lamp (TL) with ballast inside, but now they divert to cylinder lamp without ballast inside to get higher degree of brightness because switching system built in. It is recognized as more effective and efficient way to solve the lighting problem.

To do so, VET students should keep themselves updated of newest information relevant with their discipline. They should know more what problem has been being faced by people in the electricity daily world for instance, meaning that social issues should also be followed. Besides, they also should understand where most of modification made toward electrical home appliances come from, what kind of electrical system applied there.

For fulfilling the need, VET student should know what kind of media or learning resources, which is most massively used, must be adopted. To answer the question, nearly all people must answer internet. Internet has a lot of advantages which is not had by another resource of learning such as text book, magazine and so on. Internet provides a lot of tutorial of many things which will make easier for student to have certain practices either in the form of electronic textbook or even video. All of the learning resources may be downloaded free during browsing or surfing.

The facilities of internet as explained above are so relevant with the economical condition of most VET student which is not good at the average. The next problem is on the providing all resources required to adopt internet namely computer and internet connection and the human resources who is able to teach internet stuff. Most of them are hard to provide them individually. Perhaps, there is somebody says that the VET institution (SMK) is the best solution for merely providing all the resources. The solution purposed is still in the upper degree of economical value. Because, there are still a lot of VET institution which cannot cover the budget of providing the resources such as internet laboratory for student separated from computer practice laboratory

and to be free to access by the student. It is caused by most of fund has already been oriented to the more specific purpose of VET such as electrical installation workshop for electricity VET institution and so on.

Seeing the real condition as conveyed above, adopting internet as learning resources is excellent for VET student in keep enhancing science and technology but gives obstacles which are relatively different for students. In the between position of both the advantages of internet and the difficulties of providing it, the PBC exists. This is PBC which can be treated by teachers or stake holders in VET institution to encourage student to adopt internet as learning resources. This is also PBC which can be promoted not only to encourage student in the adopting of internet but also to sharpen soft skill of students in analyzing, socializing and communicating.

This paper will discuss more on how PBC of adopting internet as learning resources can enhance thinking skill, social skill and communicating skill based on the previous observational research in the several VET institution (SMK) in Yogyakarta. Besides, this paper will also prove whether teachers, stake holders and staff of VET institution affect students to adopt internet as learning resources.

B. VET Philosophy and Soft Skill Content within

VET here is *Sekolah Menengah Kejuruan* which has terminological meaning that an educational institution which run production based learning process and hoped to be able to produce the competitive and marketable products. Therefore, there are production units within. It is a must for VET institution to develop the production units appropriate with study program served there systematically and well-planned (Joko S., 2007). Beside of producing the product, VET should also prepare for the students, who come from junior high school, to become middle level workforces who have knowledge, skill and attitude of engineers (Barry N.S., 2009:4).

From above, there are two main activities of VET namely, making product as well as educating and training the student to be good engineer. For making product, students are trained how to make product either directly or indirectly. Direct training encompass guiding by the trainers or teachers to do complete procedure of making thing at the very first beginning. But indirect training happens when the students have been already pretty skilled because they already repeated the making process several times. It

happens when the student in the technical process face certain problem that was not explained yet in the direct training and should be solved by themselves.

In associating with that, soft skills are the non-technical skills that are often not given due consideration while managing projects. Soft skills, often described as an art (Belzer, 2004), is concerned with managing and working with people, ensuring customer satisfaction with the intention of retaining them and creating a conducive environment for the project team to deliver high quality products within budget and on time and exceeding stakeholders expectations. Soft skills dimensions include, amongst others, communication skills, team building skills, flexibility and creativity skills, leadership skills and the ability to manage stress and conflict (Belzer, 2004; Moreira, 2004). Mazarr (2000) mentioned that human beings know more that just ―rote, mechanical operations and endless repetition of tasks and he observed that the best workplaces are filled not by those with the most intimidating technical knowledge but rather by those with the best soft skills.

Gary Boomer, consultant and CEO of Boomer Consulting, (cited in Wolosky, 2008) divides soft skills into the three primary categories. Here are questions he has developed to gauge an individual‘s skill level. **To Measure *Leadership*** use the questions, Does the person: 1) have an executive presence? (Dress, speech, and relationships) ; 2) have a clear and communicable vision?; 3) manage themselves and have the capability to manage others? 4); have ―edge? (Can they make decisions?); 5) know their own ―unique abilities?. **To Measure *Communications*** use the questions, Does the person: 1) have good written and oral communications skills?; 2) know how to take and give instructions? 3) know how to listen?; 4) know how to professionally utilize presentation tools? 5) know how to motivate others? . **To Measure *Relationship management*** use the questions, Does the person: 1) know how to work in a team environment? 2) know how to manage conflicts?; 3) have the desire and ability to make contacts?; 4) have good client service skills?; 5) have project management skills?.

Thinking skill also belongs to soft skill. De Bono (1976) argued that thinking skill as achieving a desired mental state or result‘. Thinking skills, however, exclude such everyday types of thinking as daydreaming. The skills covered here are broad and complex; they are not as narrow as reasoning skills, or, even more narrowly, confined to knowing the rules of logic and avoiding logical errors. They encompass, in the intellectual sense, ‗knowing what to do, when and how to do it, what tools to use and

the consequences‘ (de Bono, 1976). In adopting internet as learning resources, students are forced to determine what he or she will do with internet, it is browsing, sharing in a forum and so on. What kind of software needed to provide internet and what kind of consequences of performing behavior .

Bloom, in his taxonomy of cognitive goals (1956) dalam Anonim (2000), gives an hierarchical model, in which he places :

1. The thinking skills involved in evaluation above
2. Those involved in synthesis above
3. Those involved in analysis above
4. Those involved in application,

Beside kinds of soft skill above, there is still another one which is social skills. Social skill refers to how we get along with others – family and friends. Navigating social interactions is one of the most complex tasks that human beings do, involving many psychological systems, such as visual and auditory perception, language and problem-solving. These systems develop throughout childhood (and adulthood) based on both nature and nurture. When these systems do not function properly, social exchanges do not go smoothly. Someone who lacks of social competence will have difficulty adapting to new situations, often exhibiting maladaptive behaviors (i.e., poor self-control, anxiety, inattention, and disruptive outbursts). These students also show ineffectual social behaviors, such as poor social perception and a lack of judgment and empathy in school, where students are always functioning as part of a larger group (Lerner, 2000).

In the direct training , teacher may assign the student to look for solution of the problem faced via internet. Finally by forcing the student to adopt internet, the teacher indirectly makes a treatment on their thinking skill which is to think what he or she should do with internet to solve the problem, whether it is browsing, chatting , emailing to friend or downloading the subject matter and so on. Then, Socializing skill which is to keep good relationship with others especially whom they want to ask for some helps dealing with the problem (Lerner, 2000).. Then relationship skill which is to manage conflicts, have project management skills know how to work in a team environment (Gary Boomer cited in Wolosky, 2008) .Finally, for teaching student is the same with making thing.

From the above explanation, it can be implied that VET student is actually oriented to be entrepreneur by the skill, either hard or soft skill, gotten from VET. Beside that they are welcome to continue studying on their field at university. But if both orientations are not fulfilled, they can still be labor in industry. In fact, they who study in VET institution (SMK) are oriented by parents to be labor. So it has been widely known that most of VET student come from lower economical level family (Rama H.P., 2009b).

C. Frame of Work of PBC and Its Application

PBC stands for perceived behavioral control containing individual belief to be able or not to perform a behavior. It is the newest variable added by Ajzen (2005) in determining behavior performed by individuals. In dealing with his theory related with behavior, Ajzen argued that human behavior is guided by three kinds of considerations: beliefs about the likely outcomes of the behavior and the evaluations of these outcomes (behavioral beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these factors (control beliefs).

In their respective aggregates, behavioral beliefs produce a favorable or unfavorable attitude toward the behavior; normative beliefs result in perceived social pressure or subjective norm; and control beliefs give rise to perceived behavioral control (PBC). Generally, the three variables actually indirectly predict the behavior of individual. They form intention to perform behavior at first then the intention predict the behavior. In the other words, Ajzen concludes that with the more positive attitude toward the behavior, the more positive belief held by people surrounding and the stronger perceived behavioral control, the individual‘s intention to perform the behavior will be stronger and simultaneously widen the chance for the individual to perform the behavior. For the more explanation, the model of Ajzen‘s theory of behavior is depicted below.

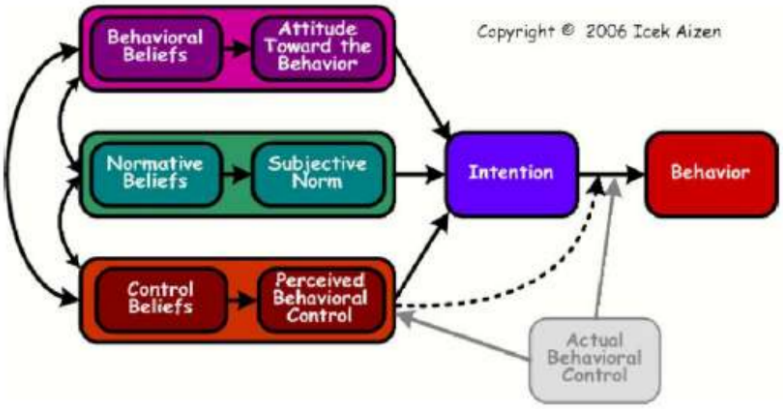

Figure 1.Model of The Ajzen's Theory of Behavior

In figure 1, Ajzen explained PBC as direct determinant as well as indirect determinant toward behavior. Consequently, PBC plays two roles namely : 1) as motivator which indirectly affects the behavior through intention; 2) reflecting actual behavioral control and directly associates with the behavior without being mediated by intention. The actual behavioral control may form as the availability of resources required to perform the behavior, for instance in adopting internet, an individual needs a set of computer and internet connection (Ajzen, 1991).

PBC describes individual perception on ease and difficulty of performing behavior. Because of that, it always changes depending on situation and type of the behavior going to be perfomed. The concept of Ajzen's PBC is much related with individual belief to accomplish a certain task of work succesfully. Therefore the belief will encourage the individual to determine type of activities, preparations, efforts which will be done, the way of think and emotional reaction going in line with the task (Ajzen, 1991).

In the theory, PBC together with intention may be used to predict whether the behavior will be performed or not. PBC is merely associated with availability of resources and chance to manifest the behavior. The more the resources and chance available believed, the higher PBC will exist so the individual will be more encouraged to take much efforts to perform the behavior successfully. The phenomenon happens because the individual believes that all of obstacles or difficulties will be overcome with the more resources and chances available. For instance, in adopting internet as learning resources for student of VET, individual who has higher PBC must know way-out to solve difficulties encountered when he or she wants to learn how to adopt internet. If the individual does not have facilities required to be online, he or she also

must know how to provide them. In the further case, After mastering the inter net stuff, while learning a subject for example *fundamental of electrical circuit,* the individual then must be able to predict what kind of internet activity which will be done to explore effectively and efficiently each competency required in the subject, whether they should do browsing, chatting, joining forum, constructing blog or website, mailing, downloading or uploading data and soon.

D. Result

Adopting Internet as learning resources based on the observation is still less massively done. Most of teachers are likely to use only text books or little notes to convey the subject matter to the students during class. They tend to give an assignment based on the text book or outline prepared, indirectly they do not give the assignment which makes the student free to use internet purposively. According to the observers (Rama H.P., 2009; Barry N.S., 2009; Tim KKN-PPL UNY, 2009) , in practice of teaching, they tend to imitate the way of teaching of the teachers which always refers to the certain text books (eg. Such a module book, etc).

Besides that, there are insufficient facilities provided by school to accommodate the need of student to adopt internet as learning resources. There are at average 50 percents of computer room have not been already accommodated. Nonetheless, authors found that the majority of VET institution in Yogyakarta have already been connected with internet but not with maximum utilized by students yet. From this, authors got the lack of opened-regulatory of the stake holders in most VET institution so that students cannot access the internet laboratory freely. Although like that, there is no strong encouragement from the chief and staff together with teachers for students to really adopt internet as learning resources so that they do not really care about (Barry N.S., 2009).

E. Conclusion

In the end of observation, there are findings that most of VET students did not adopt internet as learning resources to dig up more relevant knowledge and understanding because there was no assignments given by teachers relating with internet. Besides, the insufficiency of facilities required to adopt internet at school also contributes on this behavior. Recommendations for this situation is giving instructional

manipulations to force the students to adopt internet as learning resources and provide sufficient facilities required to adopt internet. Finally, the soft skill desired grows up on the student individual.

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INTEGRATED COMPETENCY-BASED ASSESSMENT IN VOCATIONAL SECONDARY HIGH SCHOOL IN YOGYAKARTA

Budi Santosa

Abstract

Though competency-based assessment/CBA had been undertaken by vocational secondary schools/VSS but it could not guarantee the ability of the VSS students after they worked. On the other hand, VSS students as the owners of the competency certificate who had passed the CBA did not receive respects from the industry properly. Integrated competency-based assessment/ICBA model is a competency based assessment model combining a curriculum development, implementation of competency-based training and implementation of on-the-job training/OJT correctly. Curriculum development involves the world of work in order to meet the industrial needs. Competency-based training carried out in accordance with the principles of learning process on competency standards, flexibility, and mastery learning. OJT Program is implemented by agreement between vocational schools and industry partners. The VSS students will have a good knowledge and skills and will pass when they take part in the CBA carried out by independent institutions on condition that the curriculum development, CBT and OJT are done properly.

Keywords: competency-based assessment, curriculum development, CBT and OJT.

A. Introduction

According to the Decree of National Education System in 2003 the purpose of Vocational Secondary School/VSS (Sekolah Menengah Kejuruan/ SMK) is to prepare students to work and/or to continue their studies. The consequences of these demands are that the education and training system at the VSS should be able to prepare its graduates to have competence in accordance with industry standards both nationally and internationally. It accordance with this regulation, it is necessary for them to achieve the standard skills and competency. As evidence that someone has certain skills and competence, he/she has a certificate to prove that he/she had passed the competence-based assessment conducted by an independent institution.

Since the mid-1990s, VSS in Indonesia has implemented the concept of dual system of education. Education and training can be done in schools and in industries to get the link and match program. Students will spend some time working in companies as apprentices. The dual system is based on the view that, on the supply side, it can alleviate future shortages in critical skills, and, on the demand side, that the private

sector is unable to appreciate the value of training or its national role in providing training (Gill, Fluitman and Dar 2000: 210).

As a consequence of the above regulations, the vocational learning process can be carried out with the approach of competency-based training systems/CBT, a broad-based curriculum/BBC, and the system of production-based curriculum/PBC. Meanwhile, the Decree of the Indonesian Government Number 19 Year 2005 on National Education Standards (NES) states that the scope of the NES includes; content standards, standard processes, competency standards, standards of educators and educational personnel, infrastructure standards, managements standard, financing standards and educational standards of assessment.

In recent years, the assessment of vocational competencies is developed jointly by the Directorate of Vocational Development, National Professional Certification Board/NPCB (Badan Nasional Sertifikasi Profesi/BNSP), and the National Agency for Standardization Education/NASE (Badan Standarisasi Nasional Pendidikan/BSNP), but the recognition of the industrial world cannot be hoped. Every decade, the VSS curriculum is always improved as demanded by the development of science and technology and manpower requirements. Evaluation process in CBT system should be done with competency-based assessment/ CBA. In fact, the implementation of the vocational assessment in Yogyakarta does not use the principles of CBA perfectly, so the recognition of the competence of the industry owned by VSS students is still poor.

Competency tests and certification which are undertaken by the Certification Body for Automotive Technician Profession/CBATP (*Lembaga Sertifikasi Teknisi Otomotif/LSPTO*) is an official institution under National Professional Certification Board/NPCB (*Badan Nasional Sertifikasi Profesi/BNSP*). Participants of competency test in the 2006 amounted to 1,157 which successfully graduated 507 participants (44%), whereas in the year 2007 amounted to 1456 participants which successfully graduated 826 people (57%). While participants of competency test in Yogyakarta province in 2006 amounted to 140 participants 25 graduates participants (17.9%), whereas in the year 2007 amounted to 143 participants with 48 participants passed (33.6%). Seeing the number of third-level students majoring in Automotive Vocational Secondary Schools in the Yogyakarta Province in the School Year 2007/2008 amounted

to 4600 people, we might conclude that the number of students who passed the competency test (48 people) is relatively small (3.11%).

The implementation of competency testing in vocational schools has two purposes, (1) to determine whether a person meets the required qualifications and passes the competency test, (2) to confirm whether someone has been able to perform a job according to the standard set Depdiknas (2005a: 77).

When the automotive competency-based assessment/ACBA at Vocational Secondary Schools is not correct, the result will be poor and have not been recognized by the industry. This study would like to develop ACBA model in the Vocational Secondary School in Yogyakarta. This research is aimed at gaining a competence-based assessment model that is more applicable, fair, and more effective in describing profiles of school quality comprehensively, quality assurance, and high public accountability level.

Industries need good skill and competencies from their employees, so Vocational Secondary Schools must prepare the student to have competence-based standard reflect the expectations of workplace performance. VSS must conduct ACBA properly with the result that students get a good competence and certificate of course. To conduct ACBA properly the VSS must use key concepts of methods and quality. The key concepts of methods and quality have the rule of assessment and evidences. They are; transparency, validity, reliability, authenticity, currency and sufficiency (Fletcher, 2000: 72). The objectives of the study were to improve the model of automotive competence-based assessment/ACBA in Vocational Secondary School in Yogyakarta.

There are problems currently being faced by the vocational secondary school in competency-based assessment. First, VSS has assessed the students using the test competency model but unfortunately, when the students pass the assessment and get the certificate, the industries still do not recognize their competency. Second, assessment and certification in VSS are good but irrelevant to industry needs. Third, assessment model in VSS uses competency standard but has no collaboration with industries. Fourth, industry's assessor has participation in VSS assessment but it is not in real assessment.

This study is to answer the question; how to implement integrated competency-based assessment models that is effective for vocational student automotive department in accordance with the principles CBA that can provide assurance of competence and recognized by business/industry.

B. Vocational Education

Vocational education according to Prosser is a process of teaching and learning that has aims to prepare the student get jobs. First, vocational education would 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. Second, effective vocational training can only be given where the training jobs are carried out in the same way, with the same operations, the same tools, and the same machines, as in the occupational itself. (Scott, 2004: 390-391). Vocational education is an educational institution that has the goal to prepare students with the skills and knowledge to enter employment in order to gain higher economic level. To achieve efficiency and effectiveness, vocational education must provide training to students with the situation and atmosphere as in the real workplace.

According to Miller 1985, principles and programs in vocational education are; (1) vocational education is a part of the public system of comprehensive education, (2) curricula for vocational education are derived from requirements in the world of work, (3) persons are prepared for at least job entry through vocational education (Scott, 2004: 396). Principles in vocational education include; comprehensive education, curricula are derived from requirements in the world of work, and prepare the student get to work. Comprehensive education means that education includes theory and practical material including form work attitude. Vocational education curriculum comes from the world of work meant that the curriculum was developed based on the needs of employment. Vocational education is aimed at preparing students to enter the world of work. This means that students are educated and trained to have knowledge and skills fit the needs of the world of work.

When the principles of vocational education in schools were implemented properly, it will produce a program of link and match as well as in the industrial needs and in the school supplies. Implementation of vocational education that properly consist

of; an integrated educational program between theory and practice, a curriculum that can meet the demanding needs of industry and education and training that leads to the world of work. When those are achieved, there would be no gap between industrial needs and school.

Vocational education in Indonesia through the development orientation from time to time, namely; (a) the approach to community needs for education/social demand approach, vocational schools are considered capable of producing graduates who want to work, (b) approach to workforce needs/manpower demand approach, implemented in limit, (c) changes the orientation of the supply-driven to demand/market-driven, the subjects/topics of learning to competence, from the measurement of learning outcomes to the level of competence measurement (Dedi Supriadi, 2002: 15). Paradigm shift in vocational education in Indonesia is aiming to change the learning objectives associated with labour needs. This will affect the change of learning approaches used, competency-based curriculum approach, and the measurement of learning outcomes to the level of competence measurement.

C. Curriculum Development

According to Scott (2001: vi), the curriculum is defined in its widest sense, and it refers to programs of teaching and learning which take in formal settings. Meanwhile, the new taxonomy of educational objective as practical tool for educators states; (a) as a framework for designing and classifying educational objectives, (b) as a framework for designing assessments, (c) as a tool for making state standards more useful to educators, (d) as a structure for designing curriculum, and (e) as the basis for thinking skills curriculum. (Marzano 2007: xi). Because science and technology have changed, the curriculum must develop. Vocational curriculum development must have a framework of educational principles.

Additionally, advocates of curriculum reform considered performance assessments a valuable tool for educational reform in that they were considered to be useful vehicles to initiate changes in instruction and student learning. It was assumed that if large-scale assessments incorporated performance assessments it would signal important goals for educators and students to pursue (Good, 2008: 462). Curriculum reform and performance assessments have interrelation. To implement curriculum

reform can be done through improving the performance assessment system. If we will make improvements to the performance appraisal system, then the consequences should improve the system of teaching and student learning.

The development of new curricula and program is more effective if it is based on the principles of democratic guidance and on the well-founded distribution of work. The emphasis is on the partnership based on competence, and not on administration (Krull, 2003: 8). Meanwhile, according to Tyler's (1969) in Connelly 2008: 480), rationale of curriculum design: (1) stating educational objectives; (2) selecting and (3) organizing learning experiences; and (4) assessing the achievement of objectives. To develop a curriculum has based on the educational and assessing objectives.

According to Norton (2008: 6-7), DACUM (Developing a Curriculum) is particularly well suited for educational institutions and training agencies that are implementing or are planning to implement competence-based education (CBE) or performance-based training (PBT) programs. Meanwhile Scott (2004: 1) states that career and technical education curricula include materials that focus on the development of foundational skills, such as basic skills, thinking skills, and personal qualities, as well as a common core of workforce competencies and the specific skill competencies required for each occupational area. Career and technical curricula could be developed by implement PBT and CBE that focus on specific skill competencies.

According to Scott (2001: 148), alignment of assessment with curricula has a requirement to implement a curriculum. It is called a curriculum-based assessment system and it has 3 principles. They are; (a) all processes used to develop assessment task must begin and end with curriculum, (b) the overall process model assures that every step in assessment development is systematically and carefully linked to the curriculum, (c) the process must produce assessment that are seamless with both curriculum and teaching.

Meanwhile DiRanna (2008: 7) states that alignment between curriculum, instruction, and assessment leads to better student understanding. This means that the curriculum, assessment, and instruction/teaching have a deep relationship. It takes an assessment-centered teaching framework. This framework has assessment-instruction

cycle. An assessment-centered teaching framework is relationship between curriculum, assessment, and instruction/teaching.

A large body of research shows that curriculum-based measurement produces accurate descriptions of student development in reading and math, when teachers use curriculum-based measurement to inform their instructional decision-making, their students achieve better. (Good 2009: 425). Meanwhile Akhyar (2008) found that there is a positive and significant relationship between learning styles of students with competence-based assessment. In this case curriculum development will influence to learning styles and assessment model.

D. Competence-based Training/CBT

Competence as a knowledge, skill, ability, personal quality experience, or other characteristic that is applicable to learning and success in school or in work (Wheeler, 1993: 30 in Palomba, 2001: 1). The ability to do something work that is supported with the knowledge and skills is a key of competence. Competence-based training is a model of training and education that based on workplace competence standard. VSS students can be trained by practice of real competencies in the world of work. Assessment of competency-based training has to base on standard competencies of industry driven.

In Indonesia, the key competencies in the National Competences Standard are: (a) to get work description, (b) to develop human resources training program, (c) to assess performances and (d) to accredit profession. In the book of *Ketrampilan Menjelang 2020 untuk Era* Global (*Depdiknas* 1997a: 15), states that the system of competency-based skills standards set by industry is used as the basis for the preparation of curricula, teaching materials, testing and certification. CBT is an approach of vocational education learning to prepare the student gets skill those fullfil industry standards.

The characteristics of competency-based education/training is one model of learning-oriented approach to the ability of individual students, mastery learning and always refers to the existing competence in the work world. The model is the perfect learning applied to vocational schools because their graduates expected to get a job.

Biemans (2005:7) states that there are five common characteristics of competencies: (1) competencies are context-bound, (2) they are indivisible (knowledge, skills and attitudes are integrated), (3) they are connected to activities and tasks, (4) competencies require learning and development processes, and (5) they are interrelated. Therefore, in their opinion, the concept of competence is valid, although the relationships with other concepts such as key qualifications and expertise can be quite strong. The characteristics of learning in vocational education have to enhance knowledge, skills, and attitudes to entrance in the world of work.

Heijden (2006: 468) found in his research that competence-based approach to employability outlined: (1) is advantageous for both career outcomes and firm outcomes, (2) is advantageous for both present performance on the job as well as career outcomes (long-term performance, implying the process of adaptation and learning), (3) in addition to adaptive behaviour, may include personal elements such as personality, attitudes, motivation, and ability, and (4) represents the combination of specific and more generic competences. CBT is a learning approach which advantageous for career outcomes and firm outcomes includes adaptive behaviour and gets specific competences

Competence-based assessment/CBA

Paradigm of assessment as a learning system according to Djemari Mardapi (2007: 6), assessment is part of a way to teach someone, so the assessment should be able to encourage students to learn better and teacher to teach well. Furthermore DiRanna (2008: 7) states that paradigm shift in teaching and learning was begun with assessment. The idea, that alignment between curriculum, instruction/learning process, and assessment leads to better student understanding. It means that the integral relationship between curriculum, instructional, and assessment can increase student understanding and teacher to teach well. Wider the intersection between curriculum, instruction (learning & teaching process), and assessment will become better the student understanding. To extend this intersection, curriculum, instruction, and assessment must be in the same standard domain.

Assessment is a process, which requires the collection of evidence on which to base a decision on a student/trainee's progress or achievements in the instructional objectives of the subject (Gonczi, 1998: 244). Meanwhile Miller (2008: 2) states that assessment is a broader term than test and encompasses the general process of

collecting, synthesizing, and interpreting formal and informal measurement data. Furthermore, Finch (1999: 271) states that assessment as the determination of the merit or worth of a curriculum (or portion of that curriculum). It includes gathering information for use in judging the merit of the curriculum, program, or curriculum materials.Test represents one form of assessment used to judge student achievement. Assessment is a process of collecting, synthesizing, interpreting data in the learning process as an implement of the curriculum. The data of the curriculum consist of competences standard.

The objectives of CBA according to Fletcher (2000: 13) are: (1) to certificate competence to nationally agreed standards, (2) to confirm competence against company specific standards, (3) to confirm outcomes of learning. CBA is an assessment based on competencies standards of industry to get a certificate. To obtain a certificate, a person must follow the competency test. A certificate of competency is one proof of ownership of competence. The aims of CBA are to confirm outcomes of learning, to measure of competencies, to get a certificate, and to select and to recruit. In this case, the whole purpose of learning is based on competency standards prevailing in the industry.

Cumming (2004: 90) states that there are many factors to get an assessment successfully in the vocational education and training: (1) a strong curriculum base influencing assessment, (2) the incorporation of school-based assessment in all certification, (3) preference for standards-referenced assessment. In vocational schools, competency-based assessment becomes one of the important points in order to prepare students entering the working world. Schools will be successful when able to perform well competency-based assessment. One indicator of good competency-based assessment is to have a strong curriculum, namely the curriculum that has a relationship with an assessment system.

Key concepts of methods and quality in CBA according to Fletcher (2000: 72-76) are: (1) rules of assessment (validity, reliability, and transparency), (2) rules of evidence (authenticity, currency, sufficiency). A CBA method includes performance appraisal that valid, reliable, transparence, authentic, current, and sufficient.

Competency-based system use standards skill set by industry and used as the basis for the preparation of curricula, teaching materials, testing, and certification

(*Depdiknas*, 1995: 15). Competency is determinated by the government should be based on industrial needs. Competence required in the job is a competency standard in the workplace, so that the right competency test used is based on the criteria of the job competencies. Competency test based on the criterion-referenced standards, the candidate will gain competency standards according to standardized sets.

The strategies that can be taken to optimize the implementation of competence-based assessment at the Vocational Secondary School is to improve the quality of graduates, namely to optimize collaboration/partnership schools for all elements, the main which can become a distributor of raw materials and production facilities/practices as needed (Jafar 2008). Strategies to increase quality of CBA are both by optimizing partnership between school and workplace and make a change in the market needs.

On-the Job Training/OJT

Streumer (2006, 369) states that the current attention for OJT: (a) to increase the flexibility of learning programs in the workplace, (b) to transfer of classroom-based learning, since work site and learning site are identical, (c) to changing nature of work provides more possibilities for the integration of learning and working. Furthermore according to Doug in Gonzi (1998: 222) conceptualization of competence requires a holistic approach which integrates knowledge and skills with realistic workplace practices. On-the job training have purposes to bring nearer between learning in the classroom and in the workplace.

Furthermore Rauner (2008: 752) states that an empirical analysis of vocational work concentrates on those structures in the empirical reality of work that are less affected by the so-called half-life of knowledge: in contrast to the rapid change of the technical elements of the work system, the goals to be achieved through the technical means as utility values are not subjected to such swift change. So, to get a skill with realistic workplace practices, students must conduct on-the job training in the industry.

Fletcher (2009: 100) found that secondary school curriculum tracking was significantly related to occupational earnings. In fact, students from the CTE track were expected to have higher earnings than their general track. Further, those in the dual track were expected to have higher earnings in comparison to those in the general track.

Walsh (2008:3) found that theory of vocational personalities and work environments may contribute to an understanding of subjective well-being. Vocational Secondary School must proactive to improve the interrelationship with industries by conditioning the attitudes and work discipline of students as well as had even more industry relationship.

E. Preliminary study

Preliminary study has been conducted by researcher in the Yogyakarta Mercedes Benz Training Centre, in the Yogyakarta State 2 of Vocational Secondary School, and in the Yogyakarta Certification Body for Automotive Technician Profession/CBATP (Lembaga Sertifikasi Profesi Teknisi Otomotif/LSPTO) to get an integrated competence-based assessment model that recognized by industry.

a. Yogyakarta Mercedes Benz Training Centre

CBA model is an integrated model of training programs and competency-based assessment. The participants attend a training program for one year, both theory and practice, including some aspects on behaviour also investigated starting from early in the morning until they go to bed because they are accommodated in dormitories. One class is not more than 20 people. Participants usually come from Secondary school and some from the VSS. During the first six months they were trained in the training centre, and then for 3 months they were followed on-the-job training in the automotive workshop and were always accompanied by the instructor. At the end of the training program, participants would take the test both theory and practice. In this test the participants were given the opportunity to re-take the test again if they failed. For those who successfully follow this program will be given a certificate, and almost all graduates found a job, either in the Mercedes Benz workshop or other workshops.

b. Yogyakarta CBATP

As the only certification body legalized by the Government, Yogyakarta Certification Body for Automotive Technician Profession/CBATP has done the competency test for vocational students, teachers, lecturers, and mechanics. Principally, anyone can take the competency test to obtain a certificate. Valid certificate is issued nationally, but not all companies, especially in the field of

automotive, recognize the validity of the certificate, for example Mercedes Benz Company. The CBATP Assessors come from industries and teachers. If the assessors come from industry, they must have experience in the field for at least 5 years; follow the methodology of training competency test conducted by the National Board of Professional Certification/NBPC and pass as assessors by NBPC. When assessors come from vocational school, they must have certificate competence and of course follow the methodology of training competency test conducted by the NBPC and pass as assessors by NBPC.

c. SMK Negeri 2 Yogyakarta

As one of the formal vocational education institutions, VSS has a curriculum, facilities, teaching staffs, including teaching methodologies and test competence technique. The students studied for 3 years and starting from the first level, they are trained skill programs appropriate to their interest and talents. Learning materials consist of normative components, adaptive and productive. In the first and second year, they fully study in the classroom. While at third level during the 3.5 months they learn in the workshop / industry (on-the-job training). At the end of their studies, they must take theory and practical exams. Some theoretical subjects and vocational subjects are tested nationally. Some assessors are invited to participate in the implementation of vocational exam. For students who pass the exam will receive a degree and a certificate of competency signed by the school principal.

Integrated Competence-Based Assessment/ICBA

Figure 1 illustrates the conceptual framework of the study. There are four primary topical areas that were discussed in this literature review. The figure also illustrates the relationship of the four primary topic areas to the successful Vocational Secondary School in Yogyakarta in which the overall students are recognized by industries.

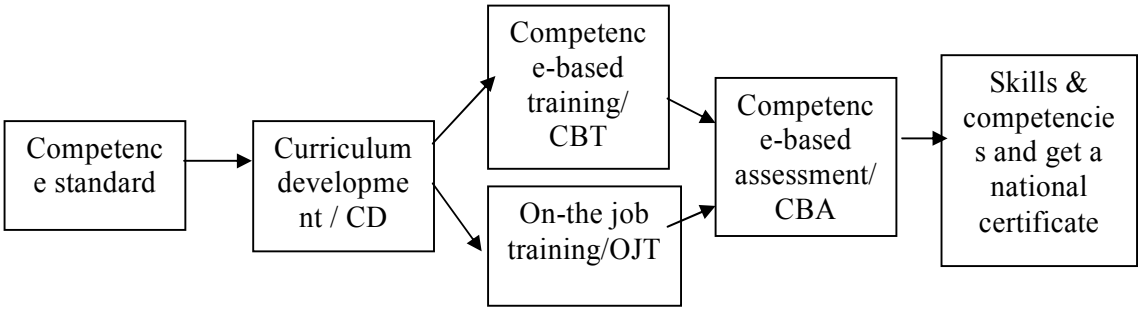

Figure 1: Conceptual framework of integrated competence-based assessment/CBA

From the literature review and framework, to improve the quality of competency-based assessment it can be done through the implementation of curriculum development, competency-based training, and on-the-job training that is adequate. Curriculum development in vocational school may be performing well if it is done by involving industries. Curriculum development is done by analyzing the competencies needed by the world of work.

Competency-based training in vocational schools should be done correctly. CBT has the right to learn according to the principles of competence standards of industry, flexibility, mastery learning, using various means and media of learning, and based on the ability of individual students.

On-the-job training should be based on agreements between schools and industry about the curriculum that will be implemented. Curriculum that has been synchronized between schools and industry becomes a key point to successful OJT program. What is learned when students follow the OJT is what he or she will face when he or she gets a job later. OJT Program is a method to realize the concept of link & match. It is an effort to meet the industrial needs. OJT program will be succeeding when the vocational secondary school has a good industrial relationship.

Competency-based assessment is a consequence of the implementation of competency based training. Integrated CBA model is implemented by combining the input and the learning process. Learning inputs in this regard is to develop appropriate curriculum needs of the industry. The learning process is to include the implementation of competency-based training and OJT program.

When CBT and OJT programs are implemented well on vocational schools, the students will have a good knowledge and skills according to industrial needs. They will

be successful if they follow the competence-based assessment/CBA conducted by independent institutions. That could happen, because the students who have attended CBT and OJT programs correctly will have a good knowledge and skills appropriate to industrial standards.

F. Conclusion

The result of assessment process in the Vocational Secondary School depends on the curriculum development, implement of competence-based training and on-the job training. This study is used to improve the performance of the school and the good student competencies. The best students who are qualified at knowledge and have skill-based in the workplace will get a national certificate.

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INFORMATION SYSTEM TO SUPPORT FACILITY MAINTENANCE MANAGEMENT IMPLEMENTATION IN VOCATIONAL HIGH SCHOOL

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Abstract

Vocational High School (VHS) generally has many equipment and facilities to run their activity. Those equipment and facilities need maintenance periodically so that they can operate optimally according to the function as a means of production that produce profit. Ignoring that can retard school activity. The facilities will be quickly experiencing damage. To avoid that, we need good steps of systematic facilities maintenance procedure.

One solution is by developing information system for facilities maintenance management (called SIMAF). SIMAF developed by four stages of SDLC (System Development Life Cycle). Those stages are designing, planning, implementation and program testing.

The result is prototype software called SIMAF. This program is a prototype, so that it still needs a lot of developments. But SIMAF supposed can be a starting point of developing a better program, so that it will be applicable well in Vocational High School in future.

Keywords: facilities, maintenance, Information System

A. Introduction

Information about teaching-learning activity in school is a need in global rivalry era at the moment. Without accurate information, VHS will be difficult to optimize learning process and decision making quickly (Joko, 2007). VHS generally has many equipment and facilities to run their activity. Those equipment and facilities need maintenance periodically so that they can operate optimally according to the function as a means of production that produce profit (Davis, 1995). Ignoring that can retard school activity (Dirjen Dikdasmen, 2001). The facilities will be quickly experiencing damage (Doris, 1998). To avoid that, we need good steps of systematic facilities maintenance procedure (Bob, 2001).

So, we need system and information about detail facilities and the treatment manner. One of the steps from facilities treatment can be done by using treatment preventive. So we need accurate information about facilities and the treatment procedure (Grover, 2003).

Computer technology presence with the process strength has created management information system development based on computer. By applying computer technology, we got a lot of benefits and ease, such as storing, organizing and retrieving various data. Supported with software and correct hardware configuration, company can build a reliable management information system and influencing significantly towards companies performance as a whole.

Preventive facilities maintenance can be done by using information system based on computer that cultivate facilities data and the treatment data in one data base that store facilities data. With computer base system, facilities information, treatment, cost and detail of facilities data can be stored and scheduled according to treatment data that being input into data base.

B. Method

We give name SIMAF for Information system that is built, abbreviation from facilities management information system. SIMAF development stages are:

1. SIMAF Design Method

   There are several steps to develop SIMAF. Those steps are being processed by a chosen method, which is System Development Life Cycle (Pressman, 2002).

   a. Planning

      This stage is done by studying existing problem through research and interview. The result are, known that in course of facilities maintenance management, we found two principal activities, which are facilities maintenance planning and facilities maintenance execution. These two activities must be documented and reported to the manager. Main goals of making SIMAF are to record maintenance planning data, maintenance execution data, facilities and supporting data. It is supposed that by recording these various data, we can work on various activities of facilities maintenance management systematically and paternally. So that existing facilities can really get good and regular maintenance.

Based on documentation of facilities maintenance management process, we got data dictionary as follows:

1) Facilities data, which is data that transcribe specifications and details from facilities.

2) Category data, which is data about facilities classification.

3) Official data, that is data about official related to facilities, for example supervisor or technician that have a duty to operate/take care of facilities.

4) Division data, study program at VHS related to facilities that used.

5) Group data, grouping facilities based on certain rule.

6) Category data, grouping facilities based on kind or the function.

7) Maintenance planning data.

8) Maintenance execution data.

b. System Design

System design begins with arranging Data Flow Diagram (DFD), and then Entity Relationship Diagram (ERD). Diagram 1 below showed series of information flows in DFD to design SIMAF.

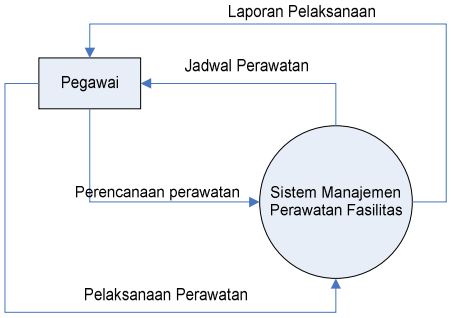


Diagram 1. Context Diagram / DFD Level 0

Diagram 1 showed that system interact with an external entity called pegawai. System accepts main data, which is maintenance plan data. Then, pegawai accept data about maintenance schedule. Next, if pegawai has carried out maintenance, the data is given to system. Afterwards, system gives report hits treatment execution to official.

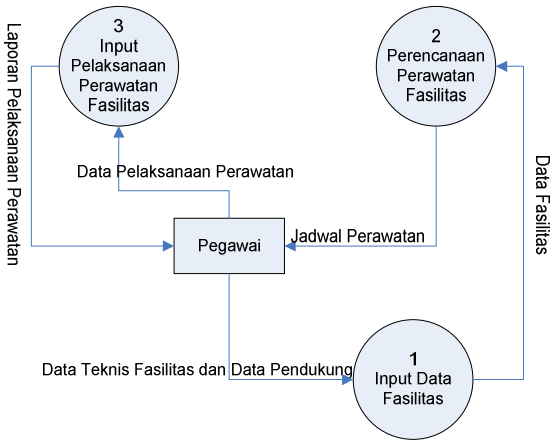


Diagram 2. DFD Level 1

After context diagram, next step is making DFD that show process from main system, called with top level DFD. Diagram 2 shows that there are facilities data flows from pegawai to process 1: Facilities Data Input. Supporting data are category, group, division, pegawai, and other data to complete Facilities Data Input process. Then, process 1 flow facilities data to process 2: Maintenance Facilities Plan. From process 2, maintenance schedule data flow to pegawai. Afterward, maintenance schedule data flow to Process 3: Input Maintenance Execution, so that Process 3 responding by giving report of Maintenance Execution to Pegawai.

Finally, after process flow and entities described, then we design database tables and relation between tables in ERD.

1) Table Fasilitas, consist of attributes as follows:

Fasilitas : Table

Field Name	Data Type
id_fasilitas	AutoNumber
nama	Text
Detail	Text
Lokasi_pakai	Number
Divisi	Number
Serial_Number	Text
tgl_beli	Date/Time
harga	Currency
Satuan_Umur	Text
Umur_ekonomis	Number
Umur_Teknis	Number
Status	Text
Jumlah	Number
Biaya_Rawat	Currency
Jadwal_Rawat	Text
id_kategori	Number
id_lokasi	Number
id_divisi	Number
id_grup	Number
Gambar	Text

2) Table Kategori, consist of attributes as follows:

kategori : Table

Field Name	Data Type
id_kategori	AutoNumber
nama	Text

3) Table Grup, consist of attributes as follows:

grup : Table

Field Name	Data Type
id_grup	AutoNumber
nama	Text

4) Table Divisi, consist of attributes as follows:

divisi : Table

Field Name	Data Type
id_divisi	AutoNumber
nama	Text

5) Table Pegawai, consist of attributes as follows:

pegawai : Table

Field Name	Data Type
id_pegawai	Text
nama	Text
tgl_lahir	Date/Time
alamat	Text
jabatan	Number
telpon	Text
email	Text
divisi	Number
foto	Text

6) Table Lokasi, consist of attributes as follows:

lokasi : Table

Field Name	Data Type
id_lokasi	AutoNumber
nama	Text

7) Table Rencana Perawatan, consist of attributes as follows:

rencana_rawat : Table

Field Name	Data Type
id_aset	Number
id_rencana	AutoNumber
tgl_rencana	Date/Time
jenis	Text
tindakan	Text
berkala	Text
penanggungjawab	Text
keterangan	Text
Status_Pelaksanaan	Yes/No
tgl_realisasi	Date/Time
Pelaksana	Text

On Table Rencana Perawatan, if the process is maintenance planning process, then all data field filled except status_pelaksanaan, tgl_realisasi and Pelaksana, because all three data filled on Input maintenance execution Process.

From all of those tables, arranged relation between tables in ERD as follow:

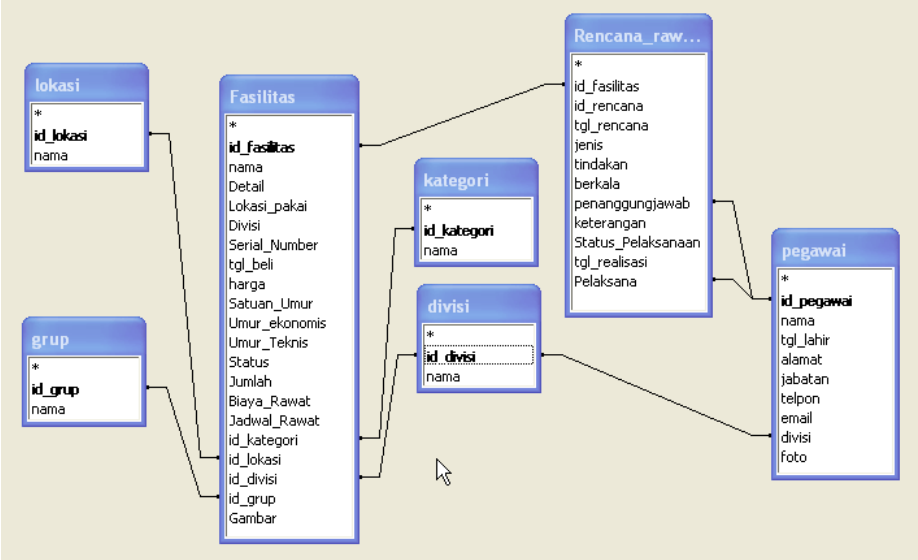


Diagram 3. ERD

c. SIMAF Implementation

SIMAF developed based on planning stage and designing stage. SIMAF is an information system based on computer that manages inventory property of an institution. This information system will ease facilities maintenance process. It is guided by study of system management of facilities configuration and maintenance. SIMAF prepare facilities for goods process management, consist of goods inventory, category, and division up to direct related operator with existing facilities. Then it will compose facilities maintenance planning time-table and the realization.

d. Program Specification

SIMAF built with programming language visual basic and data base management system with Microsoft Access using windows based computer. Application built until stage prototype with very limited features. Therefore, it is supposed that there furthermore study to develop this program, so that it can be applied directly at VHS or another institution.

e. Program Structure of SIMAF

Generally, SIMAF divided in 3 modules, which are master facilities, facilities maintenance transaction and reporting facilities. Master facilities consist of forms to input facilities data, facilities category, division, institution data, official and facilities group. Facilities maintenance transaction consists of form to input maintenance planning and maintenance realization from planning that has been made. In reporting part, user can see and print reports, which are facilities report, maintenance planning report, and maintenance realization report.

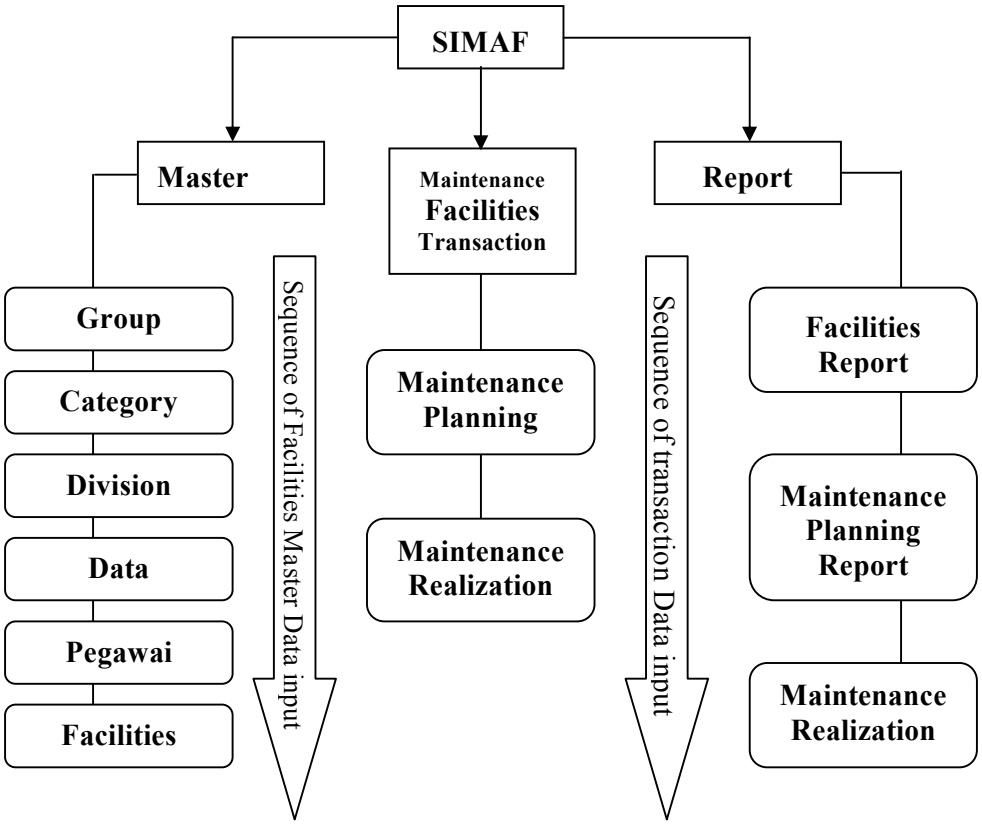


Diagram 4. Struktur Program SIMAF

As shown in Diagram 4, input data process must be in sequence from master data → transaction, and then we can see reports. In module master data, input process must initially begin from supporting data (group, category, division, institution data, official, and others), afterwards we can input facilities data. After all facilities master data filled, we can use transaction module. Transaction that has been done can be seen in report module.

C. Result

1) System Specification

To run program, several specifications hardware and software is required. Minimum System requirements are:

a) Operating System Microsoft Windows 98

b) Processor 233 MHz., Memory RAM 64 MB.

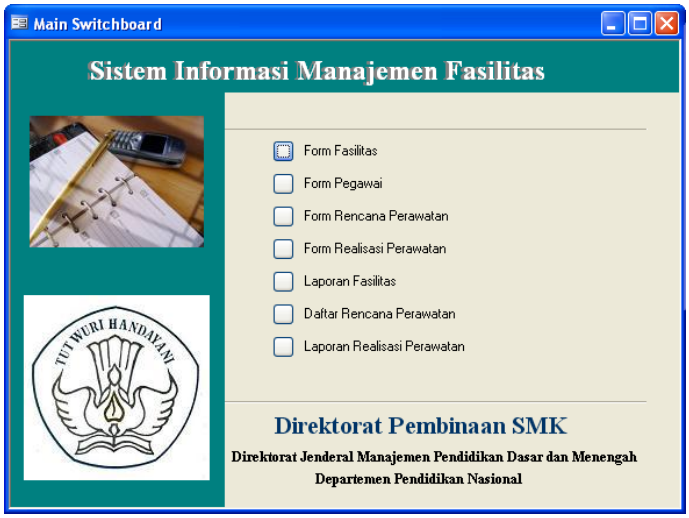
c) VGA Card compatible (suggested minimum memory 8MB).

d) Monitor Resolution 800 x 600.

e) Program Microsoft Access 2003.

2) Menu Program

Before run the application, please copy the program and picture folder into your computer. Afterwards open the copied file by double clicking SIMAF.exe in windows explorer like shown in Diagram 5 below:



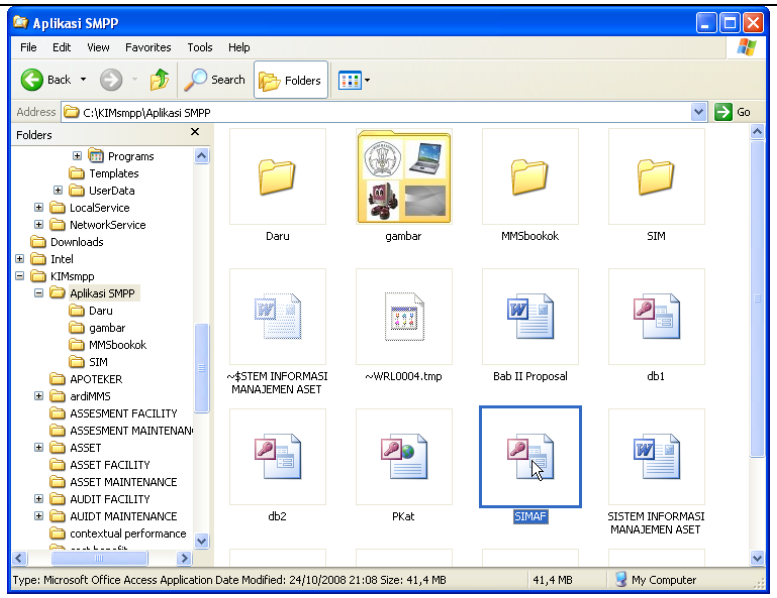


Diagram 5. Running Program SIMAF

D. Conclusion

1. To maintain the performance of facilities in VHS, we need a good systematic facilities maintenance procedure.
2. SIMAF is a prototype program that divided into 3 modules, which are master facilities, facilities maintenance transaction and reporting facilities
3. SIMAF will ease facilities maintenance process.
4. Furthermore study is needed to develop a good facilities maintenance management program like SIMAF.
5. SIMAF is a prototype with very limited features, so it needs to be developed in future time.

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EXPERIENTIAL LEARNING IN ENTREPRENEURSHIP EDUCATION TO PREPARE THE CHALLENGING OF TODAY'S WORKFORCE

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Abstract

The numbers of educated unemployment are increasing dramatically every year. These graduates failure to survive in the work place is not mainly because of their lack of capability, but because of their poor soft skills or entrepreneurs skills. It needs a deeper attention from academician to set up entrepreneurship education to the students.

Thus, to teach the entrepreneurship education more effective, it requires the accomplishment of entrepreneurship spirit to be enclosed in each course in vocational education. The students should experience the entrepreneurship education, reviewing, concluding, and planning it for the next step. These what is called experiential learning.

It is really expected that through the implementation of experiential learning with entrepreneurship spirit, the graduates will be able to make better preparation to face the challenging of today's workforce.

Keywords: entrepreneurship education, experiential learning, today's workforce

A. Introduction

In every year, universities contribute unemployment graduate in Indonesia. In 2008, over 1 million educated-unemployment came from university graduates. This number is increasing dramatically up to 26% every year (Ciputra TOT Entrepreneurship, 2009). The condition became worse as many companies fell down after the global crisis, resulted more fired employment and lesser work field for fresh graduates.

These phenomena should become Indonesia universities deep attention. As academician, we should be much more pay attention to the competency of each graduate we gave to them. Consider more about the university curriculum, the learning process, and the standard competency that have already set to the students. Generally, education in the university has a target of making high cumulative grade point average (GPA) and

more cum laude predicates. These are followed by the increasing number of fresh graduate ready seek for the job, while the job vacancies available are very limited.

University graduates seek for the job that can match to their capability, while to do so; they must struggle amongst hundreds or thousands competitor to get the same position. They already have frustrated when they must find a job from any place that can fit to them, queue in line when submit their resume and fill the application form, do some screening test in the recruitment, while at last there will be only the most competence candidate will be notified the job position. This trend addresses the question of why there is a dramatically increasing numbers of educated unemployment in Indonesia.

The educated unemployment is not resulted from their incapability, lack of knowledge and technology, but mostly because of their poor personality and soft skill. The orientations after graduation are working in company, becoming an employee, and receiving salary. The graduates even can not realize that they can make the job vacancy, rather than to find it. They do not want to take any risk starting new venture, not confidence about their potentials, and do not aware of many market opportunities face them. It becomes the university responsibility to prepare their students with sufficient and appropriate competencies to enter work field. University duties do not end after students graduation, but until the graduates can survive and to be autonomous in the work field as well. It means the curriculum in the university, especially in the vocational university, be obliged to prepare their graduates with hard skill and soft skill. By doing so, the graduates will not only to be job seeker but also able to be job creator.

Thus, it needs an accurate answer of what kind of education should be established to set up hard skill and soft skill for the students. In the vocational university, hard skill will not be a big problem. Moreover, the entire curriculum in the vocational university has been arranged in good comparison between the theory and the practical that will be suitable for the work field. It is still big difficulty to create soft skill that will make the students to be well-prepared in facing their post graduation.

B. Soft Skill and Entrepreneurship Education

The soft skills means personal and interpersonal behavior that develop and maximize human performance (Ciputra TOT Entrepreneurship, 2009), for example

coaching, building teams, initiative, and decision making. There are several kinds of soft skill needed in work field (Sailah in Ciputra, 2009), namely:

1. Initiative
2. Integrity
3. Critical thinking
4. Strong will to study
5. Commitment
6. Motivation
7. Conscious
8. Reliable
9. Oral communication
10. Creative
11. Analytical ability
12. Stress management
13. Self management
14. Problem management
15. Summarizing
16. Cooperative
17. Flexible
18. Team work
19. Autonomous
20. Well listener
21. Firm
22. Logic
23. Time management

There are some problems related to the soft skill education, for instance there is no soft skill education in class, no soft skill curriculum, who should teach soft skill education, and how to teach it. If we look further, those kinds of soft skill above were derived from the characteristic of entrepreneurs. To be entrepreneur, someone should have hard skill and soft skill including personal and interpersonal skills, which are (Ciputra TOT Entrepreneurship, 2009):

1. Communication skill,
2. Organizational skill,

3. Leadership and Autonomous,
4. Logical,
5. Effort,
6. Ethics
7. Group skill

Thus, it could say that teaching entrepreneurship education represents soft skill education. Conduct entrepreneurship education is not only entrepreneurship teacher's responsibility when teaching Entrepreneurship Course.

Entrepreneurship education means give the spirit of entrepreneurship in every course in the university taken by the students. In any kind of production course for example, the students are not only demanded to create and make certain product, but also they have to try to create the product that is suitable for the market, promote it, and sell it. Another example is in the communication course, the student's task is not only passing the exam, but also they must practice their communication skill in negotiating, giving argument, presenting, managing conflicts, and leading the team. These all contribute to the development of student's soft skills. Therefore, the curriculum is needed to be oriented to the spirit of entrepreneurship. It is believed that armed with an entrepreneurial skill, school graduates are better positioned to respond to the demands of globalization (Sugiharto, 2009).

Being entrepreneurs is not a kind of to do business. There are four kinds of entrepreneurs that every students are likely expected to be, which are (Ciputra TOT Entrepreneurship, 2009):

1. Business Entrepreneur. This group is divided into two groups. There are owner entrepreneurs, who are the creators and owners of the business, and professional entrepreneurs, who work for the company but they have an entrepreneur's soul.
2. Government entrepreneur. A government entrepreneur is a leader of a country who is able to manage and grow the entrepreneur spirit of his/her citizens.
3. Social entrepreneur. People who are included in this group are the founding fathers of social organizations in the world who are successful in collecting funds from society in order to do social work.
4. Academic Entrepreneur. People who are in this group include academics that teach at school or arrange educational organizations with entrepreneurship style.

The classification above explains that entrepreneurs do not mean to do business. It more than creating new venture and managing the production. It requires a lot of skills, especially soft skill to manage the production, communicate and supervise people, lead and work in team, and make proper decision. When each course has the spirit of entrepreneurship, it will supply the students with the soft skills at the same time.

Yet, the entrepreneurship education is still lack of implementation, which resulted in poor personal and interpersonal graduate's skill. The students will only master the hard skills, hence they will only be ready to be job seeker. Consequently, it needs a lot of attention and commitments from the teachers to enclose the entrepreneurship spirit in his/her teaching courses. It requires the students experience to implement soft skills, learning by doing soft skill implementation. Therefore, it could do with the experiential learning.

C. Experiential Learning

In the vocational education, when all course taught in the study program are only given theoretically, and hard skill mastery become main focus of competency standard, it will not surprise if the university create a job seeker or an employee. The graduates will focus on where and how to apply for the job, even it does not match to their interest and their educational background. Another problem is when the work field does not offer as many as the work required by the job seeker. In the other words, the university creates the educated unemployment. If we let it occurred year by year, the educated unemployment will be accumulated, saying sad but true, it was university contribution.

Consequently, the academicians have no choice to provide the soft skills in each course. Up to now, course taught in vocational university still lack of soft skill implementation. Because of most soft skill education contains the same material as Entrepreneurship course, then the teacher thinks it is the responsibility of Entrepreneurship course to teach soft skills. Regrettably, Entrepreneurship course only has maximum 3 credits in only 1 semester. Accordingly, soft skill education or entrepreneurship education can not be taught in Entrepreneurship course only. It is all courses responsibility to teach soft skill or entrepreneurship education. One way to accomplish the entrepreneurship education is by experiential learning.

In experiential learning, the student becomes more actively involved in the learning process than in traditional, didactic education (http://wilderdom.com). The experiential learning is not sponsored by some formal educational institution but by people themselves. It is learning that is achieved through reflection upon everyday experience and is the way that most of us do our learning (Kolb, 1984).

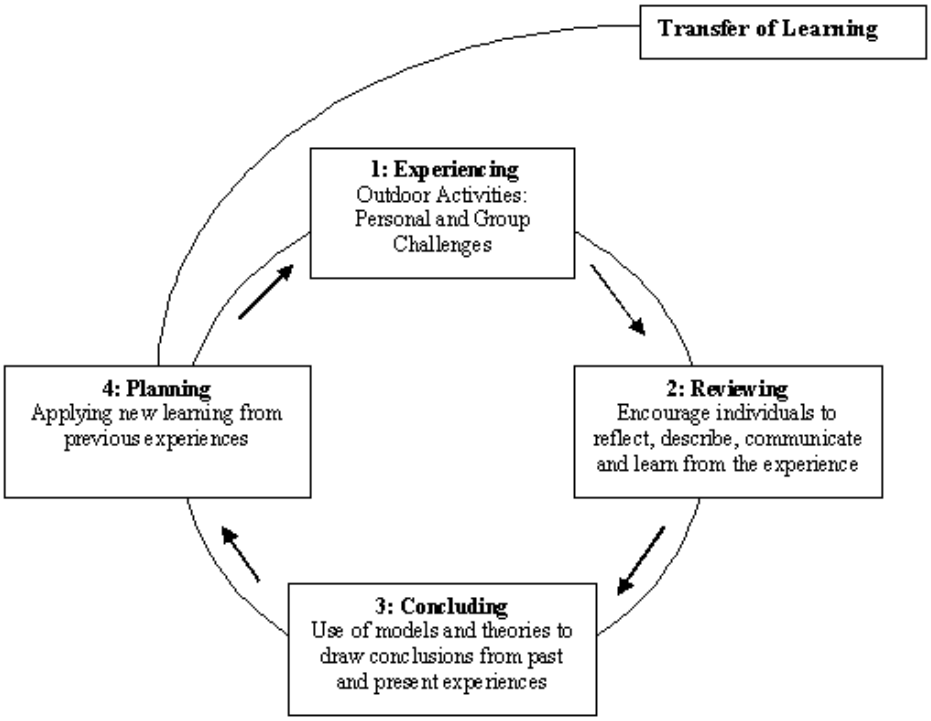

Figure Experiential Learning Cycle

(Kolb, 1984)

Experiential learning involves a cycle consist of four stages, which are experiencing, reviewing, concluding, and planning. In the experiential learning process, the participant will discover an attempt to join together the actual experiences of life with the theoretical acquisition of knowledge. (http://www.olagroup.com/Display.asp?Page=experiential_learning).

Experiential learning demands the participation of the students to get involved in the course. The aim of the course is not only the achievement of hard skills, but also the process of learning and the mastery of soft skills. When the students in Food Study Program for example, if they are asked make the cake that the recipe was already given, they must not only make the cake that was already appointed by the teacher, but also

they can do some improvements made to the cake, make a more eye-catching cake, and then sell the cake the customer afterwards. Another example is in the Restaurant course, the students in group is demanded to do some tasks not only to sell the product, but also manage the venture, the organization, the people, and the customers. It seems like there is an entrepreneurship spirit in each course.

D. Conclusion

Talk about today's workforce reality that shown an increasing numbers of educated unemployment, the university should think over about how to make a better curriculum, better learning process to make better output. The key element of these problems are the soft skill education, which become the heart of entrepreneurship education. Through experiential learning, the students will experience the entrepreneurship spirit in each course. By doing so, the students will practice their capability in personal and interpersonal skills. Furthermore, after graduation, the graduates will be ready to face the challenging of today's workforce.

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VIRTUAL LABORATORY TO SUPPORT THE STUDENT'S PRACTICE AND EMPLOYABILITY SKILLS IN VOCATIONAL EDUCATION

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ABSTRACT

Active learning is usually used as a method for improving the effectiveness of lerning by employing different mode of learning, including multi media. The advance of ICT enable the online enrichment of learning materials through the availability of tutorial, modules, solved problem and even online virtual laboratory. Virtual laboratory usually combined visual and audio mode, and threrefore need the active participation of the students to enhance the understanding of the learning materials.

The software for building virtual laboratory is written by using Macromedia Flash MX, 3-D Max, PHP, MySQL and HTML where animation was used to raise the users' interest. The development of virtual laboratory was involved in development of instructional designing model (ID model). The development of the virtual laboratory will used the theory of constructive, cognitive and contextual for Student in Vocational Education by the cognitive domain in Bloom Taxonomy to strengthen cognitive skill.

The V-lab focus on: 1) Contents to achieve the objective, 2) Result to be achieved and measured, 3) Delivery content strategy, 4) The ability of student vocational Education to evaluate performance, 5) Student of vocational education ability to refer and apply knowledge through the virtual laboratory. The effectiveness in virtual laboratory will be study after the student used the lab itself :1) Ability to access in various form of question regarding to the topics, 2) Ability to used the topics itself to execute practical work in Engineering learning.

A. Introduction

Information Technology (IT) one of the branch of science in the field of contemporary give many alternative solution to development manegement process and outomation of data traffic in the various field of work. One of the implementation on information technology needs by students, teachers, laboratory, and employess of educational institution use virtual laboratory for manage the vocational students labs and practicum.

Research in virtual laboratory is more than virtual learning approach. Virtual practicum environment used the animation and simulation in the form of 2D and 3D. Student can explore the virtual Engineering laboratory, do their experiment and get the output from that experiment. Students also need to keep their experiment information such as inference and observation in the electronic experiment report and worksheet as soon as the information recorded, student are allowed to edit and print the report.

Operation Research Virtual Laboratory (V-Lab) is a virtual laboratory specially designed for supporting the practice of operations research laborarory for the student that take the course of operations research. The aims of this virtual laboratory is to provide an assistance for the students to improve their skill in laboratory practice without direct help from assistants and can be carried out without concerning time and place contraints. OR Virtual Lab has following featutes: pre test, post test, tutotial, simulation and practice materials.

B. Electronic Learning

According to Brown (2000), Feasey (2001), electronic learning can be defined as learning activities using electronic networks for delivering, interaction and facilitating that supported by many types of learning services. The electronic learning may have at least one of the following functions, as supllement/optional to the delivered teaching materials, complement and substitution (Siahaan, 2002).

Many research reveals that the use of active instructional strategy could improve the capability of the students in understanding the learning materials. Active learning is usually used as a method for improving the effectiveness of lerning by employing different mode of learning, including multi media. The advance of ICT enable the online enrichment of learning materials through the availability of tutorial, modules, solved problem and even online virtual laboratory. Virtual laboratory usually combined visual and audio mode, and threrefore need the active participation of the students to enhance the understanding of the learning materials.

1. On-line Practicum

According to several studies presented that the pilot study seems to suggest that engineering students perceive online technologies as falling largely within two spaces – private and learning. Clearly, engineering students spend a substantial amount

of time online and are active everyday users of a variety of technologies including social networking services, word processing, and the Internet. However, in the context of experimenting with virtual laboratories for their learning, it seems that they would much rather not adopt these technologies at a fast rate. In particular, we hypothesize that this negative perception of virtual laboratories may be rooted in the social contract that exists between students and faculty. They expect face-to-face interactions with faculty and associate this with better learning. Also, their lack of experience with virtual laboratories seems to make them pre-disposed to viewing this modality as largely negative. Given that most students do not have the choice of selecting technologies that may be used for their curriculum, it seems faculty have to pay a lot more attention to what perceptions students bring into the learning environment. Clearly, as budgets and cost concerns become critical, newer technologies will be employed in the engineering curriculum. Our study suggests that perhaps using a well-planned phase-in approach to provide students with a wider range of choices when it comes to learning technologies may lead to more positive experiences for students. Also, all students participating in this study valued teamwork highly, and indicated by a significant amount that a virtual laboratory environment would not promote this critical attribute. The traditional laboratory may require less effort on the part of students to stay on task, and is a place where students are not connected to all of the other services that they may already use while they are online. Not having all of these connections may help them stay more focused in the traditional face to face laboratory, leading to a perception of a better learning environment.

2. Virtual Laboratory

A virtual laboratory is a tool for distance learning and/or experimentation that allows people to share knowledge, data, voice, video, tools, and many other resources. It provides a suitable environment to extend, improve, integrate, refine, and assist the learning and/or experimentation process of many subjects, thus contributing to an increase of the effectiveness of scientific research and widening the use of scarce or costly equipments.

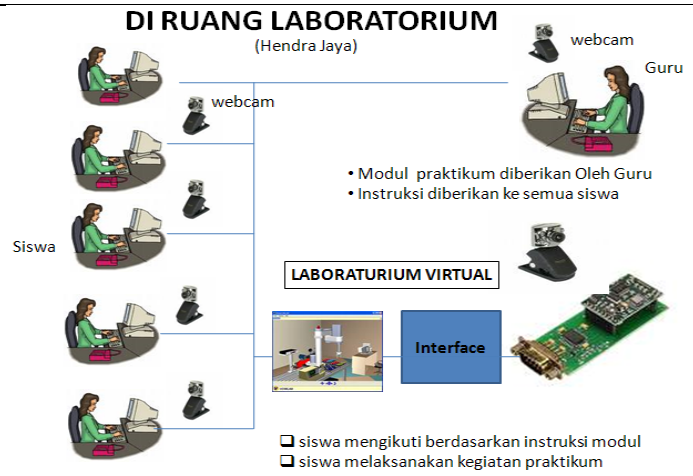

Fig. Virtual Laboratory In the Lab

C. Configuration of Virtual Lab

1. Hardware

The remote experiment is located in one of the laboratory where needs nobody to attend. The Web is the gateway for the system to exchange the necessary information between the client machine and the server. The Web browser is a platform providing an environment to run the necessary program including the Java applets, Java Script and Flash used in the development of the laboratory. Once a login is successful, a WebCam is connected for broadcasting the environment of the hardware rig to the Internet. A typical display of the WebCam is where we can see the whole setup of the power electronics experiment. It also gives the student a feel of the actual setup. Also the light will also be switched on to increase the visibility. It is also to give a signal for any one in the remote lab that the machine is being used and no disconnection or movement are allowed. DAQ cards control the signals from the WWW server through a TCP/IP channel.

2. Software

The software for building virtual laboratory is written by using Macromedia Flash MX, 3-D Max, PHP, MySQL and HTML where animation was used to raise the users' interest. Also can use Joomla and Moodle for virtual laboratory if access by internetworking. The LabView Internet Developer Tool-kit was used for the Internet control. Also Common Gateway Interface (CGI) and Transmission Control Protocol (TCP) are used for the communications between the client and the Web server. The CGI

is written for the program involved with the HTML on the Web pages whereas the HTML is a popular form of access for sending data across the Internet.

3. Operation of Virtual Lab

The system administrator creates a template virtual workstation for each class, installing and configuring the required software as per the specifications of the instructor. The instructor is then given a number of student accounts, which are replicas of this template. Students are then provided with the virtual machine name, and given a login ID and password. Unlike with a shared server, the names of the virtual machines are different for each account, and this account has full administrator rights. Students can connect to their VWS either from conventional teaching lab workstations (that by themselves do not have IIS running), or from home, as long as they have remote desktop connectivity. This allows students to develop, host, and test their web applications directly without being constraint by the settings of the local machine.

The major advantages of this setup are: (1) It becomes possible to support in-class web development exercises using conventional computer labs, (2) Students don't have to install and configure IIS and necessary software development, (3) environments like Visual Studio at home, (4) Students don't have to submit projects,sine the instructor has access to all their virtual accounts, (5) Once a VWS is created, each student/instructor can install their own personal software, (6) Special software that requires individual licenses can now be installed on the right number of virtual machines, (7) System administration is made much easier: (a) Each semester, the original template is used to re-create the class accounts by simply cloning it, (b)Both the students and the instructor have full administrative rights and therefore do

not have to wait for tech support, (c) Should an account become corrupted, only the project files need to be saved while the workstation is re-cloned

1. Evaluation Of The Virtual Lab

The virtual lab was installed and tested during the one semester, and two faculty members were given access to a small number of VWS to allow them to learn the system, configure "template" workstations for their respective courses, and write inc structions for students. To address this question, we administered a survey based on the

theory of TAM's (Technology Acceptance Model) key efficacy constructs: "ease of use" and "usefulness" (Gallivan, 2001; Chircu et a., 2000; Straub et al., 1997).

2. **Virtual Laboratory Development In Vocational Education To Strengthen Cognitive Skill**

The development of virtual laboratory was involved in development of instructional designing model (ID model). The development of the virtual laboratory will used the theory of constructive, cognitive and contextual for Student in Vocational Education by the cognitive domain in Bloom Taxonomy to strengthen cognitive skill. It will also join the conventional approach using information technology approach and exercise approach that is modules and exercise question. Virtual laboratory for learning will follow the learning objectives as in Technical subject curriculum. It will also focus on:

- ✓ Contents to achieve the objective
- ✓ Result to be achieved and measured
- ✓ Delivery content strategy
- ✓ The ability of student vocational Education to evaluate performance
- ✓ Student of vocational education ability to refer and apply knowledge through the virtual laboratory

3. **The Effectiveness Virtual Laboratory In Vocational Education To Strengthen Cognitive Skill**

The effectiveness in virtual laboratory will be study after the student used the lab itself. The aspect as shown below:

a. Ability to access in various form of question regarding to the topics.
b. Ability to used the topics itself to execute practical work in Engineering learning.

4. **Virtual Laboratories As Tools For Supporting Teaching, Learning, and Practicum Activities**

Virtual Laboratories to Support teaching, Learning, and practicum Activities The virtual environments, named virtual laboratories, vary from static Web pages with didatic videos and texts, to dynamic pages with sophisticated environments, collaborative authoring (Emigh & Herring, 2005), videos on demand, virtual meetings,

and many other features. These virtual laboratories may also allow remote access to measurement instruments, video cameras.

Virtual laboratory need an interesting grafik design to keep the student stay consistent to use the electronic learning, the figure bellow shown a design of virtual laboratory in Digital Electronic and Microcontroller

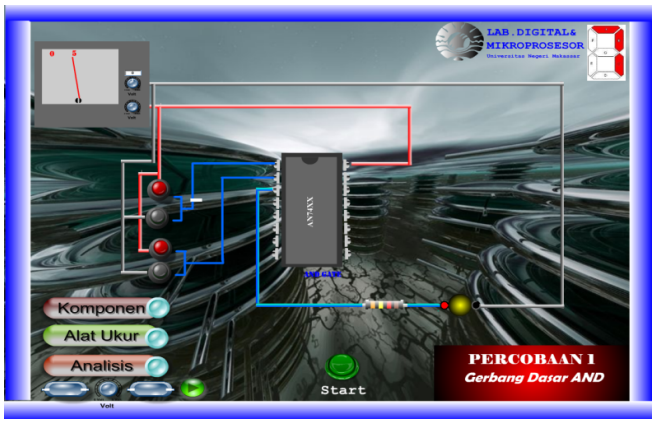

Fig. V-Lab in Digital Electronics

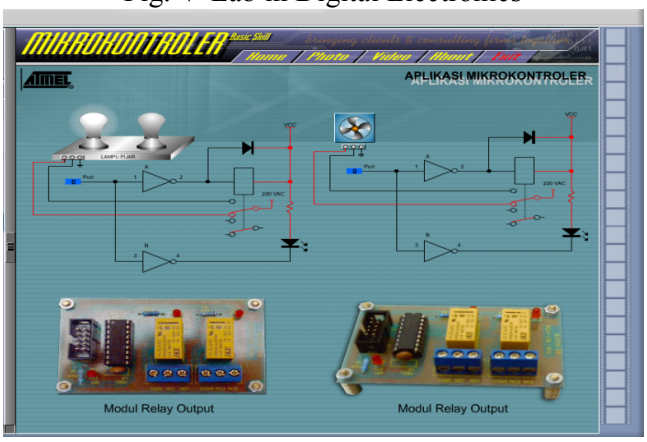

Fig. V-Lab in Microcontroller

The diversity of models and structures for virtual laboratories is large and varies according to the nature of the project under investigation, the goals, and the technologies involved. The motivations for the implementation of virtual laboratories include, but are not restricted to: (Leandro, 2006)

- The limitation on the resources and space in the real-world laboratories. This type of limitation may cause delay in the learning activities of the students, who may face the situation in which they have to compete or wait for the availability of a given resource, in addition to the fact that one's experiment may be interrupted before it is concluded, due to the need of sharing resources.

- The possibility of sharing usually expensive equipment.
- The stimulus for the collaboration of research or work in groups independentlyof their physical distance.
- The existence of a learning environment outside the school, allowing the students to participate or develop their own projects together with other students in their spare time.
- The possibility of developing different parts of an experiment at different locations.
- The remote supervision and intervention in potentially dangerous experiments, thus helping to prevent accidents.
- The remote access and control of precision equipment.
- Facilitate the learning of a subject by allowing the distance experimentation with Engineering process, chemical reactions, biological mechanisms, physical simulations, or other subjects.
- Allow for the creation of virtual communities about a central subject, and thus result in the convergence of people with similar interests to the same virtual environment.
- Bring together resources and information related to a specific subject matter.
- Provide guidelines for the use, teaching, and learning of the subject, together with means for its assessment.

This special issue presents a set of papers that explore the use of virtual laboratories and/or their specific technologies for the support of teaching and learning activities.

The next section makes a brief overview of the contributi ons.

D. CONCLUSSION

Virtual laboratory is a tool for distance learning and/or experimentation that allows people to share knowledge, data, voice, video, tools, and many other resources. Virtual laboratory specially designed for supporting the practice of operations research laborarory for the student that take the course of operations research. The aims of this virtual laboratory is to provide an assistance for the students to improve their skill in laboratory practice without direct help from assistants and can be carried out without

concerning time and place contraints. OR Virtual Lab has following featutes: pre test, post test, tutotial, simulation and practice materials.

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EMPOWERING SOFT SKILL AND LIFE SKILL TO IMPROVE GRADUATE COMPETENCE

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Abstract

Changing world is continuously happen, and that much is a commonplace. Vocational education is a relatively neglected topic in philosophy of education. There can be few subjects of greater importance to the well-being of modern societies in which to prepare young people for work. Both soft skills and life skills are the most useful for VET students in facing their future at workplace as employee or as an entrepreneur in real world of work after their graduate from VET school. To improve graduate competence, soft skills and life should be integrated in learning classroom and all education environment.

Variety soft skills and life skills can be integrated in classroom learning or in other place. However, we can identified some soft skill which very play role in shaping graduate performance in the future. Soft skill and life skill was developing through work based learning which contributes to both the intellectual and career development of VET students. In this paper, soft skill concern to literacy and interpersonal skill, and life skill concern to information and communication technology (ICT) and entrepreneur skill.

Keywords : Soft skill, life skill, competence

A. Introduction

Changing world is continuously happen, and that much is a commonplace. But, in the present context, there are two further points that can be made immediately. Firstly, the range of the changes confronting the world and those who live in it are surely not always appreciated. Secondly, the working out of the implications of change for education is still a task that is largely before us. By addressing both of these challenges, we shall necessarily come to a more informed appreciation as to what graduate might mean in this era, especially for vocational education and training (VET) graduates.

There can be few subjects of greater importance to the well-being of modern societies in which to prepare young people for work. A subject of equal importance is

the quality of the work that a society offers its citizens and the broader aims of economic activity beyond the necessary achievement of economic viability and competitiveness.

Both soft skills and life skills are the most useful for VET students in facing their future at workplace as employee or as an entrepreneur in real world of work after their graduate from VET school. To improve graduate competence, soft and life skills should be integrated in learning classroom and school environment.

B. Work Based Learning

Work-based learning (WBL) programs has many forms, but the common goal of WBL is to providing students with experience in the world of work as an employee or an entrepreneur. WBL expressly merges theory with practice, knowledge with experience. It recognizes that the workplace offers as many opportunities for learning as the classroom. the concept of skill is important because the value of work-based learning relative to classroom learning hinges on what skills are and how they are learned most effectively.

Smith (2000) have a three-dimensional definition of WBL: learning about work is informational, learning at work is locational and learning through work is experimental. They continue to state that to properly define WBL, learning must reflect the significant qualitative changes. These changes are emerging in its definition, which has been possible through the recognition of active partnerships between employers, students and educational providers.

Medhat (2008) said that A WBL Program is a process for recognising, creating and applying knowledge through, for and at work which forms part (credits) or all of a higher education qualification. Fink, Rokkjær, & Schrey (2007) clarify WBL is to obtain experience from work and for young people to be prepared for the transition from school to work and, to learn the realities of work and be prepared to make the right choice of work. an approach which focuses upon the practical utility of learning and is therefore directly relevant to learners and their work environment.

The intent of preparing students for work is not to take away from academic excellence, but instead, to integrate academic and occupational curriculum to connect school and work. Students should be given every opportunity to receive academic and occupational preparation that equips them with the necessary skills for obtaining employment and/or entering postsecondary education. (Smith, 2003).

WBL is much more than the familiar experiential learning, which consist of adding a layer of simulated experience to conceptual knowledge. In WBL, theory may be acquired in concert with practice (Raelin, 2008). WBL is an activity which design for guiding student to develop their career and educational plan for the future. Boud & Solomon (2003) express that characteristics of WBL was working and learning occur simultaneously. Learning tasks is affected by the nature of work and vice versa works influenced by the learning that occurred and the two complement each other.

WBL forming an essential part in school to work transition, cause school facing the reality that they have trouble to prepare students in real world of work. Experience work in society have been an integral part from transition school to work for students. Haimson and Bellotti (Bailey, Hughes, & Moore, 2004) explain that the principal goal of WBL is matching students with the real work and have experience that related with their interest and give more chance for students to learning by doing at real work.

Work-based learning uses many diverse technologies, but prominent among them is the deployment of action projects, learning teams, and other interpersonal experiences, such as mentorships, that permit and encourage learning dialogues. Learning dialogues are concerned with the surfacing, in the safe presence of trusting peers, those social, political, and even emotional reactions that might be blocking operating effectiveness (Raelin, 2008). There are three critical elements in the work-based learning process:

1. It views learning as acquired in the midst of action and dedicated to the task at hand.
2. It sees knowledge creation and utilization as collective activities, wherein learning becomes everyone's job.
3. Its users demonstrate a learning-to-learn aptitude, which frees them to question underlying assumptions of practice.

C. Literacy skill

The concept of literacy is not value free. It has social, cultural, political, economic and educational implications. The investigation of transition problems at the first threshold of the school to work transition and the performance of literacy studies on the basic competences of reading and writing as well as on elementary skills in mathematics and natural sciences have considerably grown in importance. Literacy skill that explain in this paper are basic literacy, social literacy, and vocational literacy. As well as

training for work, they are also expected to equip learners with basic literacy and numeracy skills, support personal and social development and offer routes into higher education (Maclean & Wilson, 2009).

Basic literacy skills as defined by Street (1984) is based on a narrow, culturally specific view of literacy practice. This view is context free, universal in time and space, and generate consequences for cognition, social progress and individual achievement. Reading, writing and enumerating are considered to be generic skills. The adoption of skills-based approaches to literacy instruction and structured curricula reflects literacy education as being the acquisition of sets of decontextualised rules and patterns. This has important implications for pedagogical theory and practice.

Skills, knowledge and understanding for reading, writing, and enumerating are set out in a linear model in which introduced to specific concepts at specific ages. Once a progression in this basic skills is established, it is a small step to begin to normalize development through this progression. When this happens with whole groups of students who share socioeconomic backgrounds, it will be reduce unemployment rate and poverty because basic literacy is the basic capital to work in all levels.

Literacy as social practice from Street (1984) proposed an 'ideological' model of literacy. Social literacy refer to both behavior and conceptualization related to the uses of reading and/or writing. "Literacy practices" incorporate not only "literacy events" as empirical occasions to which literacy is integral, but also folk models of those events and the ideological preconceptions that underpin them'.

Levine explain this view of literacy takes as its central premise the idea that the social and political significance of literacy derives largely from its role in creating and reproducing or failing to reproduce the social distribution of knowledge. Freire & Macedo wrote that critical literacy may lead to social transformation, and it is about 'reading the world' not just 'the word'. (Stevensen, 2003).

Reading, writing and enumerating are viewed as cultural practices, which are learn in specific cultural contexts and which have epistemological significance. Uses of literacy and numeracy are meaningful, but it cannot be generalized across cultures, cannot be isolated or treated either as 'neutral' or as 'technical', and have implications for power relations. In other words, how literacy is used depends on the context and the relationships among participants.

Searle (Stevensen, 2003) has viewed that Gee explain discusses such social practices, or 'Discourses', as ways of talking, interacting, thinking, valuing and believing—all of which are socially and historically constructed, so that people have to be socialized into the practice of reading text A in way B. In this sense, Gee is building on Bourdieu's notion of 'expanded competence', or language as praxis, which introduces concepts of language being functional and strategic—it is not just knowing how to produce grammatically coherent sentences but knowing about 'appropriateness': 'when to speak, keep silent, speak in this or that style'.

Larson & Marsh (2005) argue that social and linguistic practices are mutually constituted within past and present power relations among people who write and read to accomplish social goals. In this framework, the context is constituted by local, culturally specific practices that outline who has access to learning to read, and who writes which kinds of texts for which purposes. Most of the activities were developed to increase efficiency and maintain the 'social organization' of the workplace. It refers to activities as being part of a 'socialization' process that enabling employees to work collaboratively.

In fact, given that the meaning of literacy as social context in which it is embedded, and particularly reading and writing practices involved depend on social structures and the institutions of education or training. Basic literacy cannot be single uses in social context cause we live in social community. That's why the literacy would be more appropriate to refer to multiple 'literacies'. It is argued that the teaching of 'basic literacy skills' should be replaced with developing a range of contextualized social literacy skills and practices. Rather than using highly structured reading schemes or phonic reading and spelling lists, students should be engaging with authentic, meaningful texts, taking on different roles depending on the tasks.

D. Interpersonal skill

Interpersonal skill is one of the most effective skill in developing relationship with other people in every workforce. The ability to conduct oneself in the complexity of the organization as a subtle, insightful, incisive performer may assume as interpersonal skill. Interpersonal skill' is one of a number of broadly similar terms that are sometimes used interchangeably. Other such terms include interactive skills, people skills, face-to-face skills, social skills and social competence. The study of interpersonal skills and

interpersonal relationships is multidisciplinary and, at one level, each discipline has tended to focus attention on different contexts and different kinds of relationship.

Communication skills as one of the interpersonal skill still that remain a core basic requirement for a good outcome. Good communication skills are skills that facilitate people to communicate effectively with one another. Effectual communication engages the choice of the best communications channel, the technical know-how to use the channel, the presentation of information to the target audience, and the skill to understand responses received from others.

Honey (Hayes, 2002) recognizing the need for both careful analysis and synthesis, Honey illustrates his approach to the study of interpersonal interaction with the analogy of a broken cup. If the cup were broken into only six pieces it would be relatively easy to synthesis from the pieces to the whole cup. If, however, the cup were pulverized into powder it would be difficult to conclude that it was ever a cup. His approach to behavior analysis is one which he believes facilitates both analysis and synthesis. It is based on a limited number (nine) of broad categories which may be used to monitor behavior and also to provide a practical basis for planning how best to behave in the light of the situation and the actor's objectives. The nine categories are: seeking ideas, proposing, suggesting, building, disagreeing, supporting, difficulty stating, seeking clarification, and classifying/explaining/informing.

An alternative approach is based on the assumption that if we are to better understand the conduct of people in organizations we need to address what they appear to think and feel about themselves and others. how each actor's intention, and the way the other actor interprets this intention, influence show the parties to an interaction behave towards each other as the interaction unfolds. Social interaction may be viewed as a transaction in which each interactor is seeking a satisfactory outcome. The performance appraisal interview offers an example of a complex but typical social encounter in which the behavior of each party is influenced by the other. This description not only draws attention to the interactive nature of social encounters but also to the possibility of conceptualizing any interpersonal interaction as a performance which is influenced by the actors' motives and goals (Hager & Holland, 2006).

Hayes (2002) purposes the hierarchical model of interpersonal skills offers the possibility of breaking down complex skills into their component parts. An example will illustrate this.

- *Accenting*, which is the term used to describe a one- or two-word restatement that focuses attention on what somebody has just said, is one of several behaviours that may be grouped together under the broad heading of following skills.
- *Following skills* are behaviors that help one person encourage somebody else to talk and help the first person concentrate on what the speaker has to say. Followin g skills are one of a number of sets of behaviors which, at another level, are referred to collectively as *listening skills*.
- *Listening skills*, which involve an active search for a full and accurate understanding of the meaning of another's message, are, in their turn, just one of the sets of behavior which comprise one of a number of *higher level skills*.
- *Helping and negotiating* are examples of such higher level skills. A person's style of helping or negotiating will be reflected in the way in which these various micro skills are sequenced and structured.

E. Information and Communication Technology (ICT) skill

In the last half-century, we have witnessed the birth and development of a new era the information age. The era was ushered in by massive machines that could process simple mathematical operations that have evolved into a global network of technologies that can receive, process, share, and transmit information for a variety of purposes. Information technology (IT), the primary vehicle of the information age, touches the lives of almost every person. IT has transformed the modern workplace, is essential to the basic mechanisms of the world economy, is pervasive in the development of new knowledge and wealth, and has launched an entirely new vernacular. With each technological advance, the potential of IT to transform our lives further becomes even greater. (Zamroni, 2008)

The move to globalization and increased competitiveness among companies has resulted in greater demands being placed on enterprises to increase production with greater efficiency and reduced costs in terms of time, safety and potential litigation. As a result, worker involvement is not only through participation in work teams and project meetings, designing and redesigning their own work practices, but also involves supervising, training and mentoring other members of the team while themselves gaining new skills and qualifications. Success is measured by the level of participation

in decision-making, the auditing of work practices and the development of a culture of commitment and trust among employees (Hager, 2006).

One of the characteristics of the 'high performance' workplace is that responsibility is passed down to the individual worker. Now, with the increased use of technology and individuals having to take responsibility for their actions, workers are encouraged to problem solve, to question and, if unsure, to check. In addition, this company was developing as a learning organization and to that end had instituted 'continuous improvement' initiatives as well as various systems of communication (Watkins & Leigh, 2010).

It has been demonstrated already that, throughout history, literacy as technology has been used successfully to control access to certain forms of knowledge. Most recently, the latest form of 'literacy as technology' has been appropriated by human capital discourses. Jobs that traditionally required minimal basic skills are becoming more complex, demanding higher levels of literacy and numeracy. Further, new jobs are being created which require new levels and types of multi modal communication skills. Jobs have been restructured and the nature of work has also been changing with the introduction of new work practices and new technologies especially in the cybernation era, all of which make new demands on the workforce and require more skill.

New information and communication technologies have changed, irrevocably, the nature and use of literacy in Information and Communication Technology (ICT) enables exciting new approaches to undergraduate science, mathematics, engineering, and technology (SME&T) education. In addition, much workplace has been use ICT to be an fundamental skill in their activity, so that VET must be preparing their student for this ICT skill (Hilton, 2002).

F. Entrepreneurial skill

Entrepreneurship is defined as the process of doing something new and something different for the purpose of creating wealth for the individual and adding value to society. Entrepreneurial skills are needed for an entrepreneur to establish a business. We must be realistic about careers when encouraging our students and all educators should recognize the threat of worldwide competition to our comfortable way of life, especially for graduates (Johnsrud, 1997).

Entrepreneurial skills connected to making the "right decisions" for entrepreneurial success can and should be experienced and learned throughout education. It must also be recognized that entrepreneurial skills can be used in any workplace, not just when operating one's own business. Entrepreneurs must have a general set of skills. Individuals may be endowed with a general set of skills, but endowments can be augmented by investment in human capital. Formal schooling used to supplement the skill set of those who choose to become entrepreneurs (Hager & Holland, 2006).

The relationship between general education and the generic competencies needed in the context of knowledge society. The most apparent are: child being perceived as an entrepreneur of the future who is able to function in a competitive global environment, the discontinuity between the world of education and work, gap between the demands of jobs in terms of teamwork and decision-making and the way education prepares them for workplace (Botha, Merwe, Bester, & Albertyn, 2007).

The Consortium for Entrepreneurship Education (2010) has been recognize that all academic and career and technical education areas provide valuable knowledge, skills, and attitudes important for success in society. it can be used as context in every educational discipline that motivates students to excel, have experiences in the real world, and open their eyes to future opportunities.

Entrepreneurship education activities have proven to engage students in learning and using skills that have a personal value to their futures. The resulting list of knowledge and skills provides a base for educators to find ways to apply entrepreneurial skills to the curriculum without replacing any academic or technical skills. In order for students to become more entrepreneurial all students across all the curriculums should be taught the skill sets that help them to have "the entrepreneurial mindset". Entrepreneurial skills and attitudes benefit both society and individuals in all walks of life.

G. Conclusion

Soft skill must be embed in students competence to prepare their future in facing the real world of work. As one of the life skill, soft skill not only teach in the classroom, but it also should be acting in teacher behavior, staff support, and all members in the educational environment.

Work based learning useful to the students to introduce the real work. It provide students with experience in the world of work as an employee or an entrepreneur. WBL is an activity which design for guiding student to develop their career and educational plan for the future. Three dimensional of WBL are learning about work is informational, learning at work is locational and learning through work is experimental.

Literacy skill is not only about educational aspect, but more broad in social practice, cultural, political, and economic aspect. Basic literacy skill will guide student in their life as an individual to be survive in the changing world. In addition, student as social beings in the society must be have an social literacy to read the social condition and be proactive in social change. Interpersonal skill as an interactive skills, people skills, face-to-face skills, social skills and social competence are the capital to build relationship which other people especially in the workplace or in develop business as entrepreneur.

What is certain is that today's workforce requires literacy skills which go way beyond the traditional 'basics' in order to gain meaning from texts which may be computer generated as tables, databases or graphics, and be menu or icon driven. To focus not only on those basic literacy skills which are required to perform certain tasks in the workplace, but it sight of the social components of work such as membership of project teams and the social and organizational networks through which work practices are generated and sustained. In the cybernation era, we have to empower our self in ICT skill. Many workplace or other activity has been operate in ICT technology, so our graduate must have ICT skill for "shining" future.

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THE DEVELOPMENT OF ENTREPRENEURSHIP THROUGH VOCATIONAL SECONDARY HIGH SCHOOL

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Abstract

Vocational school graduations are the major contributors to the unemployment in Indonesia. Such condition is not inline with the aim of the Vocational School and it will reduce the justification of Vocational School existence.

The factors are; the disparity of quality and the type of expertise possessed by the quality of vocational school graduates and the types of skills required at work. In addition, it also due to the number of vocational school graduates in various skills programs is higher than the job vacancy in several economic sectors in Indonesia.

To reduce unemployment of vocational school graduates, the program should be developed to increase the entrepreneurial spirit of vocational schools' students. The possible steps can be done is to increase the students' mastery of skills through the activities of Production Base Training (PBT), encourage, and motivate students so they want to utilize the skills that they have learned to open their own business (entrepreneurship).

Keywords : Vocational School, unemployment, entrepreneurship

A. Introduction

The unemployment rate in Indonesia on August 2008 reached 9.39 million people or 8.39 percent of the total workforce. The unemployment rate fell compared to the position seen in February 2008 amounted to 9.43 million people (8.46 percent). Deputy Director of Social Statistics detailing further, unemployment is dominated by graduates of vocational schools (SMK), it is 17.26 per cent of the total unemployed, then high school graduates (14.31 percent), 12.59 percent of university graduates, 11.21 percent of diploma, 9.39 percent of new graduates of junior high and 4.57 percent of elementary school and the other (Arizal Ahnaf, 2009).

Although it must be addressed carefully, high level of vocational school graduates unemployment is an indicator that can warning to all those who have been the

actors, managers, drivers, and the experts who also determines the direction of the development of vocational education. Presumably, everyone involved in the vocational school need to rethink of the justification for the existence of vocational education (vocational school), that is the real need for manpower in the field that need to be educated in these schools (Sukamto, 1988:63).

The Justifying of vocational school existence at least determined by the success of students or the graduates in two respects; First, the success of students in schools is marked by student success in meeting the curricular requirements that have been oriented to the requirements of the working hood. The success of school on delivering students to meet the demands of curricular participants is often referred to as internal efficiency. Second, the success of graduates performance after being in the real working world, such as the proportion of graduates who get jobs according to their roles, the lapse of time between graduation and when getting the first job, and another success in the form of economic benefits or wages received. The success of graduates in this working world is called external efficiency.

The high enough percentage of unemployed of vocational graduates can be meant the external efficiency of vocational schools (SMK) is low. Vocational education programs can be said not entirely successful, because it has failed to deliver the graduates who obtained jobs, and are not absorbed by employment. It would undermine the justification for the existence of vocational school, and may reduce the public confidence which has been high enough to vocational school.

The unemployment rate is relatively vocational school graduates, which is 17.26% of the total unemployed in Indonesia, may occur due to several factors, they are: (1) occurs miss-match in terms of quality, and types of expertise with quality School graduates vocational (SMK), and type of skills required at work. As a result, many job opportunities open can not be entered by the vocational school graduates because they do not meet the qualifications prescribed in the work hood; (2) unbalance between supply and demand (over-supply) of manpower of vocational graduates. The number of vocational school graduates in various fields of expertise, is greater than job vacancy in various economic sectors in Indonesia.

This paper will try to assess why an increase in unemployment of vocational school graduates, and how the effort can be done so that the vocational school graduates are no longer the largest contributor of unemployment in Indonesia.

B. Problems

It has been described, at least there are two factors why most vocational graduates can not enter the work, namely, quality and type of gap between graduates of vocational skills program and the needs of the working world, as well as the number of vocational school graduates is greater than the number of available job opportunities. Therefore, to reduce unemployment vocational school graduates can be done by improving the quality of graduates, customize the type of expertise and number of graduate in accordance with the needs of industry or occupation, or by encouraging graduates of vocational school can open opportunities for their own work with entrepreneurship. The problem is, how to improve the quality of graduates and develop a spirit of entrepreneurship (entrepreneurship) at vocational schools to produce graduates who can enter other open and available job, they are also able to create employment opportunities for themselves by opening their own business (entrepreneurship).

C. Discussion

Vocational School (SMK)

Vocational School is an institution that aims to prepare students to work, either independently or to fill existing jobs as middle level manpower in accordance with its competence, (Bambang Parikshit, 2003). The objective of vocational school brings consequences that should be able to equip graduates with the appropriate set of competencies with the demands of employment needs. Therefore, a vocational education program is more emphasized on developing the capability to undertake particular types of work. This is in line with the basic concepts of vocational education to prepare mid-level engineers to work in industry and to fill new job opportunities open along with the development of the industrial world.

Vocational Education curriculum used is Unit Level Curriculum. This curriculum was compiled on the current educational program nationally (the National Curriculum), and the educational program that was matched with the situation as well as the requirement for the environment and the typical characteristics of the relevant educational unit (the Regional Curriculum).

The content or structure of vocational course curriculum consists of General Program, and Vocational programs. General Program contains normative subjects, thus

also called a normative component. This program is intended to shape students into good citizens and have the whole Indonesian human nature. Vocational Program consists of two groups of subjects, namely the Basic Vocational and Vocational Skills Group. Subjects included in group Basic Vocational subjects that contain knowledge or basic science is the foundation for a vocational field. Groups of subjects are called Component Adaptive, whereas the subjects included in the group called Components Productive Vocational Expertise.

Adaptive component contains the subjects that serve to give the supporting provisions for professional mastery, creating the ability to grow and adapt to developments in science, technology and art in accordance with the relevant educational courses. Components consist of subjects that form the ability to function productively in a practical way that can be applied to appropriate employment.

Productive components consist of the basic components of the profession, and professional skills components. The basic components of the profession is in the form of practical training to master the technique worked well and properly fit the demands of professional expertise. While the professional skills component is in the form of activities are programmed to work in a real situation to reach a level of expertise and professional work attitude.

Mission of Vocational High School (SMK)

Vocational education is one form of vocational education; therefore, operate in reference to the concept of vocational education. Vocational Education developed understanding of the translation of the concept of vocational education (vocational education) and occupational education, which, according to Calhoun and Finch both are included in education to produce industrial technicians (Calhoun and Finch, 1976: 2).

According to Finch and Crunkilton (1979: 2) vocational education is defined as education that provides supplies to students in order to work to sustain their life. While Hyslop & Margison in Swotzel, (2001: 2) imply that vocational education is a sub system of education that specifically and consistently prepare manpower of needs necessary to encourage a shift from an agriculture-based economy to industrial-based economy.

Vocational education organized with the mission or purpose. Wenrich and Wenrich as quoted by Slamet (1996: 20), said that the purpose of vocational education consists of three, namely; produce manpower needed by the people, increase

employment options for all students, and give the work motivation to the students to apply the knowledge that they have learnt.

Vocational education was held on the basis of certain principles and these are characteristic of vocational education. According Suharsimi (1988: 64), Calhoun & Finch (1982: 63) a principle or philosophy of vocational education that is very comprehensive delivered by Charles Prosser in the form of postulates, which was then known as *the Prosser's Sixteen theorems on Vocational Philosophy*.

The principles of vocational education are outline can be concluded that vocational education will be effective and efficient if the learning environment is a replica of a working environment that will be occupied by students later. Therefore the equipment, working atmosphere, and the assignment must match the real conditions. Exercises granted is actually doing the work piece directly, not mere imitation or simulation, so as to form the habit of thinking and working according to the labor market qualifications. It appears that vocational education requires educational patterns based on experience (experience centered).

Such orientation of vocational education, have consequences that educational programs are held, should be able to follow the development of the workforce, although the working world always changes as a result of social development, economics, and science and technology. Therefore, efforts to maintain compliance with the workplace education program, is an activity that should always be made of the vocational education.

Justifying Existence of Vocational School

The holding Justifying of vocational education programs is because of the power that need to be educated in these schools, namely labor needed to fill an open job opportunities in the industry along with growth of the industrial world. However, the only educational programs oriented to the preparation of manpower to work in the industry can have consequences, especially regarding the external efficiency. Justifying the existence of vocational school is thus determined entirely by the development and industrial capability to absorb the graduates it produces. This is certainly a weakness, especially when associated with the lately development of Indonesian industry.

As it is known that at the initial stage of industrial development in Indonesia, the priority given to industrial development for import substitution (import-substituting industrialization) and the type of export-oriented industries (export-oriented

industrialization). The realization of the development policy of the two industry groups are able to attract multinational companies (multinational enterprises) to penetrate the industry in Indonesia. However, many of the multinational corporations that are included in the group of companies or industries that is very easy to leave or move on (foot-loose industries) industries such as electronics, textiles and textile products, shoes, and etc.

Industry types are either *PMA* (Foreign Investment) or venture capital companies (joint venture) enter and operate in Indonesia because of the availability of exploit comparative advantage in abundant labor force willing to pay cheap. The own industrial activity does not have strong roots and are not able to form an industrial base, because the operation is not associated with local industry. The presence of such multinational companies can not afford to be driving forces that stimulate the growth and development surrounding the industry which can act as a supplier and establish a network of upstream-downstream industries which have a linkage product.

Although the scale of multinational corporate business is very big but the absorption of employment of vocational graduates are not fully reliable. Besides labor that does not require technical skills and specific education such as vocational school, also do not have a snowball effect in terms of employment because the mission and nature of the industry has no product linkages with the industries around it.

A lot of job opportunities open to various multinational companies operating in Indonesia are a number of industrial estates operator who generally do not need to have skills and specific skills such as vocational school graduates possessed. This is certainly a challenge because if the vocational school graduates have to fight over as operator of employment opportunities with other graduate-level education will cause the rate of return is low and therefore vocational school graduates will be able to weaken the justification existence of vocational school.

Therefore in order to be a fairly high public belief in Vocational School can be maintained, then the Vocational School should restructure the orientation of the educational program, by conducting educational programs which are really needed by society, although the needs of the community itself will develop vocational education programs in line with the political changes, economics, social culture, besides science and technology. In addition, to reduce the high unemployment rate graduates of

vocational, entrepreneurial development can be strengthened new justification to vocational school existence.

Mental Development of Entrepreneurship in vocational

Development of the entrepreneurial spirit at Vocational School (SMK), it can be done through training activities based production activities (production-based training). This is the core activity, students learn the skills to produce a product, and products of student learning is good and services needed by the community so that it can be sold to the public to gain economically.

In principle of Production based training is a form of vocational efforts in order to bring the ability of students with the kind of work that will be accessible after finishing his education. Therefore efforts should be in the vocational school, and it is in line with the Nolker opinions (1983) that "vocational education must constantly adjust their education programs with the development of the working world, must unite between personal needs, society, and science in general".

Management concept of training based production, by Wiroreno (1995:19) has been interpreted to be applicable in the form of development activities generate income (income generating activities) for the school, for example a model in vocational education that combines synchronous between teaching and learning practices in particular subjects of expertise profession with the activities of the production process. In the production based training, professional skills practice activities as well as a production process of goods or services.

In this case, production process used as a vehicle to the practice of vocational students to attain professional skills in the field of the vocation. The students carry out production activities to produce real goods and services that the quality should meet consumer standards and must be done within a predetermined time limit. The pattern of earnings management activities (income generating activities) in the vocational school can be seen in Figure 1.

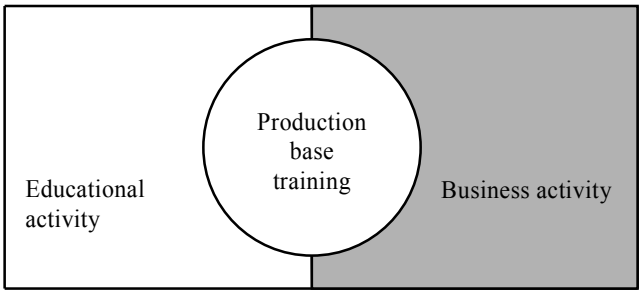

Figure 1. Relationship between Education Activities, Business Activity, Production Base and Training (PBT).
Source: N. Otjo Wiroreno, Development Activities in the STM and BLPT According TEDP Patterns, Jakarta, Directorate of Vocational Secondary Education, 1995, h.19.

Implementation of Production Base Training (PBT) as shown in Figure 1 calls for a clear separation between education and business activities. This separation involves the organizational structure, resource management, and decision-making process. However, although there is a clear separation between education and business activities, it was between them still attached to each other so that will allow the exchange of information and the Establishment of proper coordination.

Besides training students in skills, Production Training Base Activities but also train as well as in business activity. Vocational students involved in Production Training Base will have a good skill, because it was trained to produce quality products according to the needs and be accepted by society. Besides the technical skills, students also have experience in the production process, product price Determination, and in business transactions. It can be said that vocational students who already have skills and experience in this business already has an initial capital, thus can be encouraged to conduct entrepreneurial activities.

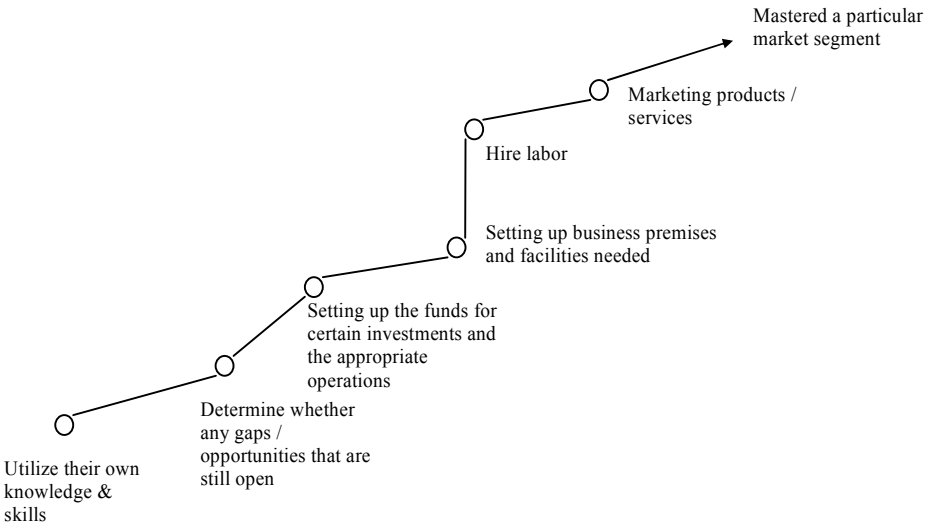

Figure 2. Start a Business Activity.
Source: Joe Setyawan, Strategi efektif berwirausaha, Jakarta, PT Gramedia Pustaka Utama, 1996, p.48.

This is in accordance Setyawan opinion (1996:48) that business activities can be started from a desire to utilize the knowledge and skills that are owned. It is required sensitivity or the ability to discover new business opportunities / business solutions in the skills they have learned. The next step, setting up funds for certain investments and operations as appropriate, prepare a business place and necessary facilities, hire labor, marketing of goods or services, and end with the mastery of a particular market segment. These steps can be illustrated in figure 2.

It is said further by Setyawan, business opportunity / business can be obtained from a combination of the information, relationships, and creativity. The information required being able to sensing or finding business opportunities, especially information about the strengths and weaknesses, needs and desires of consumers, consumer demand that is not met yet, the environment that we face, support that can be get and etc. These are the inputs that need to be analyzed, processed laterally, particularly, creative, original to generate added value to the goods or services that already exist, or to create new benefits and consumption of goods or services they produce. Next determine whether the equipment, knowledge, skills, and a number of resources there is a gap or business opportunities that are still open.

Successful business opportunities of Sensibility should continue to be followed up with business strategy / business and can translate into an actual business. Business strategy / business plan is an integral part of a comprehensive and integrated effort that links the strengths and weaknesses of the organization with the environment that it faces to achieve the aim of earning profit. Business strategy is also called a business concept (Supriyono, 1998:8).

D. Conclusion

From the description that has been submitted, some main points can be concluded are:

1. Vocational school graduates unemployed is the highest contributor of total unemployment in Indonesia. The factors are, there is disparity of quality and type of the skills that vocational school graduates have to the needs of the working world. Besides, it also due to growth in the number of vocational graduates is higher than the growth of employment opportunities in various sectors of the economy in Indonesia.
2. To reduce the number of unemployed graduates of vocational school needed entrepreneurial spirit development to the vocational students. The way are: (A) by creating a culture of business or business within the vocational school, through the Production Base Training, (b) encourage and motivate students to try to utilize the skills and expertise which has been owned by a gap or business opportunities that are still open, (c) provide information necessary to make students able to sensing or find business opportunities, especially information about the strengths and weaknesses, needs and desires of consumers, consumer demand is not met, and etc.

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THE DEVELOPMENT OF LIFE SKILLS PROGRAM WITHIN VOCATIONAL EDUCATION AND TRAINING CURRICULUM

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Abstract

In principle, education serves as an instrument which helps students to improve and develop themselves as independent individuals with proven competency that they can benefit for their living and handling real problems in the community. Vocational education is intended to prepare its graduates to become independent workers and/or labours relevant to the industrial demands and needs. The challenges they are facing come in the form of dynamics of change and uncertainty in the real working world.

The implication is that vocational education programs, apart from being required to provide the graduates with working competence, are required arm the graduates with soft skill which may help them to adapt and overcome problems of uncertainty in their career both in the work environment and the community. Therefore, development of curriculum of vocational high school is oriented to preparing its graduates with skill by furnishing them competence adjusted to the labour market demands, and with a soft skill in the form of life skill, especially the general skill, so thtat the graduates can get the working competence and are able to handle da-to-day problems in their job, as an individual in a community, as ad God's human.

Models of cooperative learning, problem-based learning, contextual teaching-learning, and authentic evaluaton method can be selected tas model for learning and evaluation of VET's soft-skill improvement.

Keywords : *Life Skill, Competency, General Life Skill*

A. Introduction

Implementation of CBT Program within VET especially in the Vocational Secondary Education (VSS) was made effective in the Vocational Secondary (VSS) Education Curriulum of 2004. One main idea of the 2004 curriculum is the pure implementation of CBT which is characterized by approaches of Academic, Life Skill, Competency-based Curriculum, Broad Based Curriculum, and Production based Curriculum (Depdiknas, 2004). In addition, principles of curriculum diversification is also introduced which—in this case—serves to enable the Vocational Secondary School

to develop their education programs adjusted to the demands of occupational word, given condition and industrial potential characteristics in the area where the school is located while still refering to the national education standards.

It seems that the direction of VET's development is oriented to students' competence improvement as to enable them to respond to the needs of work market. The VET's macro-development direction refers to principles of demand driven, namely refering to employment needs and conditions. This is attributed to the VET's roles which remains the same from time to time, namely, to prepare students to get ready for work, either for self-sufficient business or for responding to any avaliable vacancies. Therefore, the VSS, being an institution in charge of preparing middle skilled labours, is expected to produce graduates which can be later well absorbed by the industry. VSS's graduates shall be human resources with high related competence, adaptability, global insight, competitiveness and productivity.

Problems encountering the VET in macro terms are there in the so called globalization era, while domestically there have been multi-dimensional crisis indicated by political and economical crises. The economic has increased the rate of unemployment by 40 million. Considering that no indication of occupational growth has been recorded, than it can be said that no decrease in unemployment rate has been recorded, and therefore VET should take an active part in dealing with the high rate of unemployment. Related data show that each year, around 88.4% of senior high shool graduates do not continue to college and 34.4% junior high school graduates fails to go further to senior high school (Depdiknas, 2004). Owing to the low absorption of occupational vacancy, then the VSS should be capable of furnishing their graduated with related competence in order that they can create their own work or penetrate into the ever competitive global work market so that the VSS's graduates will not add to the long list of unemployment.

Another problem prevailing with VET in VSS is how the VET can furnish the students in terms of the latter capability of dealing with life problems. To keep the unemployment rate low, the education system must be able to change burdening humans to productive ones, and furnish the students with related skill enabling them to penetrate into work fields or create their own jobs (enterpreneurship), so that they can become independently earn a living for themselves and their families. Education system

should grow a sense of pride of work self-sufficiency; this pride may be created by the graduates by running a motorcycle repair shops, working in the market, or running a tailor shop and so on. In this case, the education system is required to implant rational thoughts an set of values that vocational jobs are not less decent than those of office jobs. The purpose of work is to earn a living for their own welfare.

As to furnish the VSS graduates with competences for dealing with real problem, Life Skill Programs, especially General Life Skill Programs, are offered within VET. The main questions with regards to development of Life Skill within the VET are : (a) How to formulate relevant curriculum to construct profile of life skill as demanded by the community, (b) How the life skill materials be effectively designed and delivered to the students, (c) How to make the right measurement as to make sure that the undertaking has been reached, and (d) How the model and aids of teaching may grow the students' life skill for dealing with the real life problems they may encounter.

B. Development of Life Skill within the VET-VSS

Life skill is a competence attached to an individual that he can benefit to be willing and bold enough to face life problems in a normal way in the absence of pressures, and further proactively and creatively find alternative for solutions. Life Skill is in nature broader than occupational skill, let alone manual skill. Unemployed individuals, such as a housewife or retired person, still needs life skill as they can'avoid facing problems to be solved. Individuals undertaking education programs also need life skill as they encounter possible problems as well.

Life skill can be divided into five sub-skill, namely (1) self awarness, also called personal skill; (2) thinking skill; (3) social skill; (4) academic skill, and (5) vocational skill. The five life skills in general can be grouped into two skills, namely (1) general life skill consisting of personal skill, social skill, dan rational thinking skill; and (2) specific life skill which consists of academic skill and vocational skill.

Life Skill can be seen in iluustration 1.

<table>
<tr><td rowspan="5">Life Skill</td><td rowspan="3">General Life Skill</td><td>Personal Skill</td></tr>
<tr><td>Thinking Skill</td></tr>
<tr><td>Social Skill</td></tr>
<tr><td rowspan="2">Social Life Skill</td><td>Academic Skill</td></tr>
<tr><td>Vocational Skill</td></tr>
</table>

Illustration 1. Scheme of Life Skill Concept

Self awarness skill covers (1) self-awarenss as God's human, member of the community, and citizen, (2) awareness and grate of their strengths and weaknesses, which are the human capital to grown their own development as productive individuals for themselves and their environment. Thinking skill covers (1) skill of information searching, (2) information processing and decision making skills, and (3) creative problem solving skill. The social or interpersonal skill covers (1) communication skill and (2) collaboration skill. Developing empathy, understanding and communicative skill in this case is not only merely defined as conveying a message, rather on how the messages are transfered and result in development of harmonious relations.

Relations of modules , Life Skill and the real life is presented in Illustration 2 below.

Illustration 2. Relations of Real Life, Life Skill and Subject

The pattern of relations of real life, life skill, and modules can be described as follows. In order that the school's education program can furnish the students with relevant real life problems, then the real life problems in community should be well defined to construct the profile of the said Life Skill, which should be further defined into school modules. Therefore, identification of life skill for delaing with the real life should be made, followed by identification of materials required. This should be futher packaged in the form of modules (engineering of curriculum and modules is indicated by dashed arrows). Provision of life skill to students is indicated by bold arrows) is what is being learnt in each training subject to construct the Life Skill for future need when the individual starts penetrating real life in the community. (Team of Broad Based Education, Depdiknas 2002).

Packaging of community's real life phenomena in the modules in a repllicative way should be carefully made as not all the real life reality can be automatically included. Training subject for life skill will be better if compiled based on work reality in the industry as to provide graduates with applicable work competence.

Subject matters on how to win a project by giving a bribe to the authority, for instance, should not of course be introduced, despite the fact that it is what happens in reality.

Evaluation for life skill program should be highlighted. Learning programs intended to develop life skill or contextual learning should be equipped with model of authentic evaluation, namely evaluation in the form of how the students implement what should be done in the real life; this, at least, should be carried out in the form of shadow authentic, in which tasks are given for training on ho to solve real life problems.

C. Life Skill Program Learning within VET-VSS

Implementation of Life Skill program in formal education at school is carried of through the Broad Based Education (BBE). BBE Program is a learning system which allows students to comprehend and command concepts and principles of knowledge underlying in each field of skill as to provide students with understanding of not only 'what' and 'how' a particular job is performed, but also 'why' the jobs is done (Raigeluth, 1983).

Education is intended to provide students with broader and fundamental education as to furnish them with strong base for self-development according to the demand of science and technology , and adaptability to the changes prevailing ing the community. In terms of learning, two issues should be addressed as to meet the goals of eduations, namely (a) Materials which supports yang development of adaptive skill, attempted by giving extra time to learning hours and selection of essential items. The step is mainly applicable for learning of general life skill (personal skill, thinking skill, creative, and social skill; (b) Curriculum aor learning program should be organized using the approach of Broad Based Curriculum (BBC). This approach should be organized while considering the related (a) basic program, (b) advance progam , and (c) specialized program.

As for the basic program, training materials for both adaptive and productive programs should be included for all the students. This way, each student in each field of skill will have the equal opportunity to command basic competence in a comprehensive and essential ways. This learning should be focused on mastery of basic skills which will become the foundation for respective related competence. This basic program

should be applicable to the learning of general life skill, such as personal skill, thinking skill and creative skill, and social skills.

As for the advanced program, learning of life skill should cover sturdier and more functional basic competence in support to development of a particular skill. Materials for curriculum in a particular field of skill are grouped according to the respective competence prigram; for example, program for aoutomotive engineering skill shall be groupded into automotive competence. At this stage, students should be grouped into their respective selected programs. The learning program should be directed to mastery of basic competence and its respective proper conducts, which meets the competence standards applicable in the related industry.

Within the specialised program, life skill learning materials should be packed into competence packages adjusted to the field of occupations available in the work market. These packages are intended to furnish the students with relevant skills to meet the work market's demands. Each student may choose one or more packages offered according to the respective period of time of accomplishment. Not only should this learning stage be done at school but also in the community (real life), so that the competence being introduced is fully standardized and at the same time students may get internalized to related attitude, value system and work ethics required in the real work.

Application of Broad Based Education in attempt of development of life skill in the stage of type of education system should of course be adjusted to the educational goals set up within the respective shool. In senior high schools, especially VSS, the main goal should be preparation of its graduates to be future mid-skilled labours which are now in progress for development of curriculum based competency. Learning programs at VSS should not merely function to develop vocational competence, but more importantly, should develop students' intellectual and emotional competence, and personality as wee in response to the demand of modern community, especially the demand of work market and industry.

Ideally, life skill programs within the VSS should be able to meet te needs of graduates to cope with the future real life in the community. This means that, education within the VSS should be able to furnish the students with relevant competencies to

respond to job vacancies while also capable of living a life as an individual, a citizen and a God's human. Vocational education programs which are capable of furnishing their graduates with related skills to perform the required job and earn a living in the real life is called as vocational education with life skill orientation.

Vocational education is said to be effective when it is equipped with high relevant preparation for real life, ins pite of the fact it can reach its 100% quality, due to the fact that not all invidual's need can be satisfactorily reached through education. Relevance of education and the needs of real life can be seen in illustration 3.

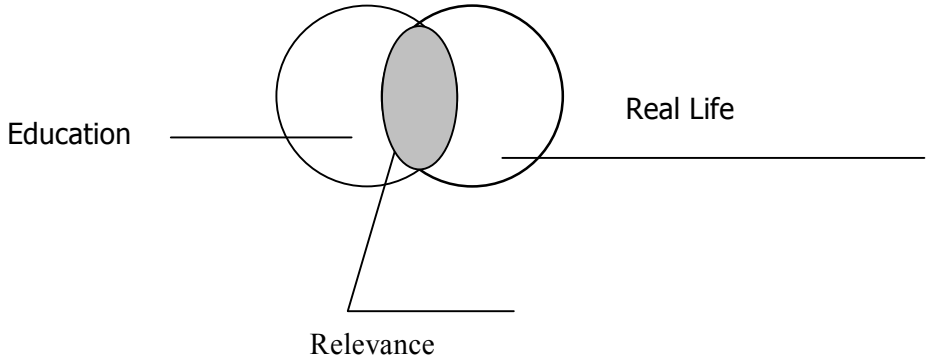

Illustration 3. Relevance of Vocational School and Real Life

In order to furnish the students with relevant work competence, vocational education at the VSS should be oriented to improvement of CBT learning approaches learning for better provisions of professional skill and competence to students (Blank, 1982). Meanhwhile, in order to live a life as an individual, students should be equipped with life competence to enable them survive in the community and to adapt to the development he may have to be involved in. Under the ever changing and developing demand of industrial world, students are required to keep adapting to the prevailing changes in order to exist. The said Soft skill covers personal skill, responsibility, independency, and the courage to make decision and independency in their job; not only will they be workers, but they will also be job inventors for their own and others.

Therefore, the main mission of vocational education with Life Skill orientation should be the fact that they have the competence required by the industry, and the preparedness of living a life in the communit where they weill be involved in dynamics of changes of science and technology. In short, Singkatnya, VTE-VSS with

Life Skill orientation functions to train the students to command vocational competences in a professional way, while preparing them to get equipped with high intellectuality, moral commitment, and the ability to live in a good harmony within the multi-cultural, multi-religious, and multi-ethnical community (Dikmenjur, 2007). In addition to that, VTE-VSS is also required to be capable of furnishing the students with the ability to independently develop themselves where they can individually invent jobs for others.

Life skill learning should then be developed within the VTE-VSS as to furnish students wih the required competence. There are two kinds of life skill required by each individual to live a successful life in the community,namely the generic skill and specific skill. Spesific skill is the skill required to perform duties or earn a living which covers *specific vocational skill* and *spesific academic skills*. Spesific skill within ini pada VTE-VSS is developed by means of varied learning models such as cooperative learning model, problem based learning and contextual teaching and learning with authentic evaluation model which measures day-to-day students' related behaviour and performance. Under such varied learning and evaluation model, the graduates' expected life skill may be developed.

As a reference, at the *Industrial Technician Certificate* (ITC) *Courses Employability skills* di Singapore, generic skills are offered to all competence programs with the same period, through the *Employability Skills* module with an average period of 14 hour-semester-credit-unit as shown in Table 4. The *Employability Skills* consists of some modules as shown in Table 5.

Table 4. Credit units required for Industrial Technician Certificate (ITC)

Course Specialization	*Modules*				*Total*
	Core	*Specialization*	*Employability Skills*	*Elective*	
Electrical Eng.	50	10	*14*	6	80
Electronics Eng.	47	10	*14*	7	78
Information	4	9	*14*	6	75

Technology	7				
Manufacturing Eng.					
CNC Machining	48	15	*14*	3	80
Tooling design	48	13	*14*	5	80
Mech.+Electrical Drafting& Design	60	6	*14*	4	84
Mechanical Eng.					
Tooling design	54	9	*14*	3	80

A selection of modules are offered to students of ITS (*Common elective modules*), namely:

1. *Independent study/project*
   Students are trained to carry out a planned and individualized project
2. *Overseas assignment program*
   Students are trained to develop leadership qualities, self-confidence, independence, cross cultural interaction skills and other life skills
3. *Interdisciplinary module*
   Students are trained to acquire additional knowledge and skills offered by other departments or institutions
4. *Spreadsheet & database*
   Students are trained to use the spreadsheet and database application software to perform computation and generate reports with graphs, charts and diagrams
5. *IT application*
   Students are trained to perform workgroup computing and set up a basic peer-to-peer computer network to enable sharing of data and resources

Table 5 List of Generic Skill at ITS Singapore

No	Life Skill	SKS
1.	*Communication skills.* Students are trained to apply appropriate communication skills effectively	2
2.	*Interpersonal skills.* Students are trained to relate effectively to different levels of personnel from diverse social, cultural, racial and occupational backgrounds	2
3.	*Personal effectiveness*.	2

	Students are trained to build a positive self-image and set goals for better work performance	
4.	*Group effectiveness*. Students are trained to function effectively as a team for improving work performance leading to enhanced productivity through effective leadership	2
5.	*Thinking skills*. Students are trained to identify problems and apply creative thinking to generate innovative solutions	2
6	*Information technology*. Students are trained to use the internet application	2
7	*Sports & wellness (I & II) 1+1= 2.* Students are trained to maintain a fit and healthy body and develop an appreciation of sports and games	2
	Total	14

This way, it seem that development of life skill program at VSS should be focused on generic skills, as it has so far been applied to through the given VSS curriculum which is said to have been adequately available. Also, no curriculum alteration or extra modules addition is required within the application of life skill program at the VSS, apart from the integration of Life Skill generic materials do the VSS prevailing program. School education programs are aimed at furnishing students with life skill required when an individual starts his real life independently in the community, lead a life as member of community and citizen who is capable of solving real problems.

For example, learning English and Indonesian languages is not merely intended to comprehend the language materials, rather, more important, is to use the language skill to communicate effectively both in written or verbally, with regard to their jobs. This also applies in the religion teaching in which students are not only required to be capable of practicing the religious teaching for conduct of faith, but also required to implement the teachings in real life in the community and in the work environment where individuals develop practices of tolerance, discipline and work accountability. Civics is also a good example where students are not only introduced to comprehending their rights and obligations as citizens, rather, more important, is how the rights and obligations and applied in their real life and job performance.

C. Conclusion

Based on the brief description above, it can be concluded that, in order to furnish the graduates of VTE-VSS with related skill to respond to the real work requirement and dynamic global community, then VTE-VSS curriculum should accommodate life skill-general life skill programs for the benefit of students apart from occupational competence they require for real work.

Application of Life Skill program at VTE-VSS should not necesseraly be done under a separate curriculum, rather may be integrated with the life skill programs available at the existing curriculum. Relevant life skill marerials for VTE-VSS should be based on the community's requirement by means of mapping of needs which are focussed on general life skill rather than spesific life skill. The mapping is intended to analyse aspects of Life Skill that can be inserted in the existing competence/sub-competence modules in the prevailing curriculum.

Life skill learning may be given in a varied model for effective development of life skill. Of course, evaluation for life skill learning should be made using the authentic or performance evaluation models, rather than by means of evaluation test which merely measure cognitive competence.

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SOFT SKILL: A SOLUTION FOR GRADUATES' COMPETITIVENESS IMPROVEMENT OF VOCATIONAL EDUCATION IN GLOBAL ERA

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Abstract

Globalization and modernization have changed all aspects of human life and have given challenges for vocational education. The global culture has changed the way from real communication to a virtual communication; the economy has developed from industrial-based economy to a knowledge-based economy. It has changed the industry's needs toward the worker's skill and capabilities. These changes have implications on the competence of vocational education graduates. On the other hand, the number of graduates outnumbers the job availability, which leads to a very tight competition.

The problems faced by vocational education in preparing qualified are: (1) what competencies of vocational education graduates should possess in the 21st century?, (2) what competencies that the industry needs in the 21st century?, and (3) how to perform the effective vocational learning to shape such competency?

In the 21st century, vocational education graduates are required not only to have a vocational competence but should also have good softskill. Second, the 21st century industry requires graduates who have competence covering soft skills, such as: (1) critical thinking and problem solving skills; (2) the ability to work and learn as a team with different individuals across the nation and across cultures, (3) the ability to plan based on accurate information; (4) the ability to adapt to rapid change; (5) international communication skills both oral and written, and (6) having a future vision and willing to self development. Third, vocational education teachers equipped their competency-based instruction with the constructivist learning approach.

Keywords: soft skill, graduates, vocational education, global era

A. Introduction

Globalization and modernization have changed all aspects of human life. How to communicate changed dramatically from the real-based communications into virtual-based communications, from direct communication becomes indirect communication. Provision of information that previously took a long time turned into a very fast as if no time and place limit (Suyanto, 2006:37). Job market competition has changed from initially local to a globally cross-nation. These changes carry implications for changes

in workforce competencies. On the other hand, the number of graduates outnumbers the job availability, which leads to a very tight competition. It is asserted that vocational education will face challenges in preparing qualified graduates.

The vocational education has to prepare graduates who have high competence to compete in the global competition. However, the facts show that vocational education graduates still have low competitiveness. Directorate of PSMK showed that the job-market absorption of vocational graduate in all fields of expertise in 2005 = 70%, 2006 = 72%, and 2007 = 74% (source: PSMK Strategic Plan 2005-2009). The unemployment rate in high school graduates and universities was 26% in 2004, increased to 50.3% in 2008 (Kompas, August 23, 2008). Fasli Jalal stated that the low rate of job absorption was mostly caused by the graduate's low competence or not in accordance with the industry needs (Kompas, February 6, 2008 p: 12; Sakernas, 2007). According to Suparno (2008), the industry has been complaining about the fact that our graduates do not have relevance to the needs of the job market (Kompas August 22, 2008). Sanyoto (2008) asserted that there is a gap between industry needs and competencies of graduates. These data indicate that there are problems with vocational education graduates. The question is how far the relevance of vocational education graduates compared to the needs of the job market? What competencies needed by the workforce in a global era?, How our education prepares graduates according to the needs of the industry?

Projected competency in some field of expertise is too specific for vocational education graduates, and it leads to difficulties to be accepted in the job market. Our vocational education curricula still give the more priority to hardskill rather than soft skills. While as the impact of technological changes, the industry needs more graduates who have a high soft skills to adapt quickly to changes (http://www.sdf.gov.sg/). The issue is whether learning in educational institutions have been oriented towards soft skill formation?, How vocational education teachers to equip graduates with the competencies of soft skills?

In the global era, the job market requires workers who not only have a high skill competencies, but also workers who have flexible skills to cope with rapid changes. Isnandar (2006) mentions that the college needs to do a revitalization to the existing curriculum and teaching models in order not to get stuck on providing technical and

professional expertise, but also better preparing graduates to have a high adaptability to changes. The number of workers absorbed in their field is very limited, some of them must work in a very different expertise, far from his professional expertise. It needs a workforce that are more creative and innovative, having strong entrepreneurial spirit to be able to open job opportunities.

B. Problems and Challenges in Vocational Education

From the stated background above, there are three major problems: (1) What competencies should be given in order to be able to produce graduates that has a high competitive power in the global era?; (2) What basic competencies required by the industry in the global era?; and (3) How to set up the values of basic competencies through vocational education effectively and efficiently?

C. Discussion

Vocational Education 21st Century

Vocational education has enormous potential and role in labor's development and labor's "marketable" by having not only high skills but also a benefit beyond "as the means of production" (Finlay,1998). Vocational education should not created manpower as handyman or robot, but must be able to prepare graduates in a democratic way and humane manner, so that human beings grow into intelligent, highly skilled, and have a decent character and have a high nationalism. Vocational education is part of the human resource investment that equip someone with the ability and qualifications to work in a reasonable and competitive in the global economy which changes very rapidly. In the 21st century, vocational education should also have a vision of sustainable development; the development that put the pattern in which natural resources are used for the purpose of meeting human needs as well as preserve the environment so that those needs can be met not only for today but also for the future. Thus, future competencies related to the environment becomes a must.

The development of a global culture that relies on the power usage of computers in the network (Internet) has changed the pattern in which the human brain is no longer used to memorize something when the incident occurred, which happened, who was involved, how the chronology of events and so on. Because it did not matter anymore in the 21st century. Simply by entering a keyword, search engine will deliver what was

required. The ability to make good questions becomes necessary competence in the 21st century, because good questions will gather good information. Questions will determine the extent and depth of what information can be unearthed. Creating a good question requires critical thinking power and ability to manage and resolve the problem.

Implications of the global era where life colored with virtual communication, is changing needs of individuals in the ability to adapt to complex changes, laterally, and fast; as of information technology. Deseco (2003), Wagner (2008:14) states that in this global era there are changing demands from the rigid workforce competencies into a flexible which allows one to adapt to rapid changes, independent workforce, capable of working in teams, able to solve problems, able to communicate, and have high initiative.

Mohamad Nuh (2010) states that our graduates must be trained to get used to the pressure so he/she can face the global competition. Changes that transform as challenges implicate to the importance of key competencies needed by individuals. Competence is not just knowledge and skill, but also includes the ability to fulfill the demand of a very complex psychological and mobility of resources (including attitudes and skills) in a particular context. For example, an effective communication skill is a competency that requires individual knowledge about language, information technology, practical skills and attitudes toward people who are invited to communicate. From the description can be said that vocational education has to change the orientation of the curriculum that prioritizes the hard skills to strengthen the soft skills competency.

Improving the Job-market Absorption for Vocational Education Graduates

Absorption factor of the graduates is essentially a very complex problem because it is associated with economic, political, legal security, and cultural factors. Labor can not be separated from national economic growth and development. If the condition of the national economy is growing well then the investment will run, the industry will evolve so that it will open many new jobs to absorb labor. UNDP (2004) reported that the quality of human resource development is measured by the indicators as follows: (a) economic performance (b) industry growth, (c) political role, (d) demographic developments, and (e) education. The issue of absorptive capacity of graduates includes:

(1) relevance of graduates, (2) the quality of graduates, (3) industry growth, (2) the growth of national economic performance, and (3) conditions of demographic trends.

In a quality-visional education institution, curricula and other educational tools are required to meet quality standards in line with expectations and needs of the workforce. The dynamic development of information technology requires new standards adapted to the dynamic demands of the community needs, so that vocational schools can always appear excellent and has high relevance. On the other hand labor recruitment does not only depend on the quality of graduates alone. There are many factors - economic, social, legal, political, and cultural factors influence on recruitment. According Nurhadi (2008), citing Kenneth Arrow (1974) explains that the industry will seek qualified employees who have high productivity and performance. In the screening theory of, education is seen not as a measure of the skills and knowledge of prospective employees, but it requires individuals who have an intellectual character, high motivation, and willingness to work hard. So the industry is more oriented to long term investment i.e. basic skills possessed by graduates.

Ivan Berg (1970) and Nurhadi (2008) stated the theory of credentials which declares that actually entrepreneurs do not have any information about the performance or educational background of the employees. According to Berg, education is only an statistical indication the ability or performance of the employee performance can be drawn from their education background. Thus, the entrepreneur will select or hire employees based on their diploma.
Bowles and Gintis (1975) in Nurhadi (2008) explains that a thriving community comprised of structures that have functions for its elements. To fill these functions it is required different human competencies. Education is used as means to prepare the implementation of these functions.

Based on these theories, education has to grab the substance industry needs: graduates who have a high competence in the field of profession and they have additional benefits such as basic attitude of superior high-spirited personality, motivation to achievement, innovative, cooperative, respect for diversity, honesty, and high commitment to work. These values of personality are the attitude of excellent and superior leadership (Shaw, 2006; Charney, 2006; Blanchard, 2007). From the description above, it can be said that on the 21st-century, industry requires workers who have high soft skills. Therefore,

vocational education should be able to develop the basic potentials through the curriculum and the learning process so that graduates have the competence diversification.

Industrial Development and Labor Competency

Various rapid changes in information technology, modern economic growth, and cultural changes in society demand essential changes in workforce competencies. A new perspective has emerged in the 21st century, that young workers are not enough to just have a basic knowledge related to the three "R's" (reading, writing, and arithmetic) as the capital of the ability to work but also need strong knowledge applicative skills. Further stated that the soft skills is very important competencies for workers to be ready to work (http: / / www.dol.gov/odep). A soft skill competencies is also seen as critical competency to ease a person adapting to various work situations (http://www.sdf.gov.sg/). It can be stated that for entering the competitive era, soft skills is the key to success for employees.

The industry not only requires hard skills, but also soft skills. Why are soft skills - that are cored as 'champion character' so important for work? The answer is simple. The industry needs a super worker. The followings are the index of classification required from a super workers: (a) willing to work hard 9.03%; high confidence 8.75%, (3) has a vision of the future 8:37%, (4) can work in teams 8:07%; (5) 7.91% have careful planning, (6) able to think analytically 7.82%; (7) adaptable 7:12%; (8) able to work under pressure 5.91%, (9) 5.27% proficient in English, and (10) able to organize work 5:26 %. According to the Continuous Progress Development Forum (CPD, 2002), soft skill is a personal advantage associated with the non-technical matters, including the ability to communicate, socialize, and the ability to control themselves. Softskill is an affective capability that a person should have, as addition to his/her ability over technical or formal intellectual disciplines, which allows a person to be acceptable in any kind of work environment (Mirza, 2005; Dev, 2006, Kaipa, 2005; Alsop, 2006).

Wagner (2008) states that while entering the "New World" of Work in the 21st century, the seven survival skills required are: (1) critical thinking and problem solving; (2) collaboration Across Networks and the leading by influence, (3) Adaptability and agility; (4) initiative and entrepreneurship, (5) effective oral and written communication,

(6) Accessing and analyzing information, and (7) curiosity and Imagination. In the new world, economy evolved from traditional patterns to the industrial pattern, and now the scientific pattern (knowledge-based economy/KBE). KBE is marked with the pattern of trade that prioritizes the use of modern technology and science as a driver of growth, development, and job creation for prosperity (Zuhal, 2008). In the KBE jobs are stated in the tasks that must be resolved. This is the place where the workforce must have the ability to solve problems, to design work, and to work in teams. The concept of teamwork is very different today compared with 20 years ago. Technology has provided a model of virtual teams. Virtual teams work with people throughout the world by solving problems using software. They do not work in the same room, do not come to the same office, doing conference calls every week, working with a web-net meeting. The challenge of global and virtual collaboration is a cooperation network. Skillfulness of individuals working with networks of people from different across boundaries and cultures is an essential requirement for a number of multinational companies. Strategic thinking, is the core competency.

In the Partnership for 21st Century Skills it is agreed that understanding and appreciating cultural differences is an additional core competencies for all the needs of high school graduates. Concern on global change –according Wagner (2008: 25) refers to the needs of students' ability to (1) using the 21st century skills (such as critical thinking skills and problem solving) to understand global issues, (2) learning from and working collaboratively with individuals from different cultures, religions, and lifestyles in the spirit of mutual need and open dialogue in the context of working and communicating; (3) understand the culture of countries, including the use of English. Survivors in this challenge require capabilities that are flexible and can adapt as a lifelong learner. The key competence is the ability to do ambiguously, the ability to learn from parts or from fundamental core, and strategic intelligence.

Learning in vocational education

Learning is one of the important keys in the success of education. Learning is an educational process that will determine the different educational achievement among schools. The current learning approach that is implemented in vocational education are the mastery learning, learning through practice or learning by doing, and individualized

learning. Conceptually, competency-based learning (CBL) approaches are adequate for shaping the vocational skills. But, along with the changes characteristic of high technology integrated into the production process, the graduates are required to have both the vocational and intellectual skills. It needs some learning innovations with constructivist approaches. Constructivist learning can develop effective self-reliance, communication skills, thinking skills, and cooperation within the team (Parjono, 2008). According Parjono (2008) constructivist learning can develop communication skills, independence, ability to think and work in teams. Constructivism views that knowledge is actively constructed individually and personally, based on existing knowledge.

Implementation of the learning process is a key implementation of CBLs. If the organization of CBLs is not eligible, it is difficult to obtain the results of learning in accordance with a predetermined competency. The main thing that must be considered in the implementation of the learning process is the readiness of input learners (students) and the instrumental input of the curriculum (teachers / instructors, strategies, methods of learning and teaching techniques, education media, time, place, etc..) necessary to organize of teaching and learning process. Learning approach that is most suitable to implement CBLs includes mastery learning, learning by doing (learning through concrete activities), and individualized learning (learning that considers the ability of learners).

Learning performance can not be separated from elements of the quality of the learner. The quality is related to the ability and willingness to learn owned by the learners. Philosophically, some of the learning problem is closely related to the willingness and ability of learners to learn. Based on observation and experience of managing different learning activities, teachers / lecturers often encounter obstacles such as; first, in general, students do not learn continuously, they only learn when it will be the exam only, so that mastery of the material is less (not attached). This could be due to the fact that the evaluation conducted by the lecturer / teacher based solely on the results of the tests or final exams only. Second, students are difficult to be invited for discussing the material; they are very passive, especially when asked to read the literature before the lecture, only a small proportion of students who perform it. This condition can be caused by many things, such has: (a) lack of understanding the language of literature (English text-book), (b) teaching materials are not contextual, (c) students are not

trained to communicate their thoughts, (d) learning is often more on the delivery of information or knowledge alone, does not stimulate discussion.

Concerning the ability and willingness of the lecturer as a facilitator of learning, it is not separated from the problem of commitment to make changes (Smith, Hofer, & Gillespie, 2009). The actual conditions faced include: (1) the variety of motivations, understanding the vision, understanding of a philosophical paradigm of vocational education and knowledge levels of lecturers affect the learning quality improvement efforts, (2) the number of teaching materials to be delivered is always an obstacle for teachers to develop forms of learning (discussion, discussion of assignments or presentations). Based on the above description, it can be concluded that facing the 21st-century challenges the teachers / lecturers in vocational education should do a re-orientation of the learning patterns of competency-based learning to a constructivist-based learning.

The Role of School Principal

The school principal is one of the key to success in achieving the goals of education institutions (Husaini Usman, 2006: 302; Hoy and Miskel, 2005:374; Bush & Coleman, 2000). The vocational school principal role is to set a vision, to develop values, norms and culture of the school, to develop their commitment and motivation to encourage all elements of the organization can give their best performance so that the schools achieve a quality result (Syamsul Hadi, 2008; Adam & Gamage, 2008). The school principal also serves to empower stakeholders of vocational education to be able to provide support in capacity building, institutional, systems, resources, culture and direction so that the confidence of stakeholders on vocational education has increased. In the perspective of national education policy there are seven main roles of school head/principal: (1) educators, (2) managers, (3) administrators, (4) supervisors, (5) leaders, (6) the creator of the work climate, and (7) entrepreneur (Principal Competency Standards, 2007:169; Husaini Usman: 2006:249).

In the context of making changes from CBL to the constructivist learning, from curriculum that emphasizes hard skills to the soft skills-oriented curriculum; it requires a reliable school principal. The success of quality improvement depends not only on institutional leaders, but also in all components of the organization at all levels. It needs

a leader who has a clear vision, who can develop organizational values, develop a commitment to empower all components of organizations to achieve the goals set. Bush and Coleman (2000) explain the criteria for effective educational leadership as the following: (1) serve as a model, (2) serve as an inspiration and motivator of quality for members, (3) provide intellectual stimulation and (4) serve as a mentor for each individual.

D. Conclusion

From exposure to the related issues and discussions, it can be summarized as follows: First, in the 21st century vocational education graduates are not only required to have a high vocational competence, but also have good soft skill. Second, the 21st century industry requires graduates who have the competence soft skill which includes: (1) critical thinking skills and problem solving; (2) the ability to work and learn in teams with different individuals across the nation; (3) the ability to make plans based on accurate information; (4) ability to adapt to rapid change; (5) international communication skills both oral and written, and (6) to have insight in the future and willingness to develop. Third, vocational education teachers who complete the competency-based learning should be enriched with the constructivist learning approach.

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THE EFFECTIVENESS OF IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM (QMS) ISO 9001: 2008 ON VOCATIONAL EDUCATION

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Abstract

This study focuses on the effectiveness of implementation through the Quality Management System (QMS) especially ISO 9001: 2008 including 8 principles: (1) customers focus, (2) leadership, (3) involving people, (4) process approach, (5) systems approach, (6) continuous improvement, (7) factual decision making, and (8) mutually beneficial supplier relationships, in order to fulfill customer satisfaction with the high absorption of graduates in business and industry, as well as understand the constraints and its effects after implementing ISO QMS 9001: 2008.

Research method used were descriptive analytical method with qualitative approach. The use of this method and approach is started from the main purpose of research, namely to describe and analyze the data and information field in accordance with actual conditions. The research location is SMK Negeri 13 Bandung as a Vocational High School which got the first certification ISO 9001: 2000, as the international standard pioneer in West Java from PT. TUV International Indonesia. Again in 2009, this school can upgrade the latest version of its certification with ISO 9001:2008. The respondents were both parties internal customers including teachers, employees, staff elements and external customers such as students, parents or society, government/jobs.

From the result of the research, known that the impact of implementation of ISO 9001: 2008 in SMK Negeri 13 Bandung were : making the work system be a standard document, ensuring the process carried out in accordance with established management system, improving employee's motivation, carrying out a job in a clear relationship between parts involved, standardizing the various policies and operating procedures in the organization, establishing a solid foundation in building attitude and desire for any progress and increasing image quality organization in the market, with that results can enhance the efficiency and quality of graduates for the fulfillment of customer satisfaction which was marked by high rates of graduates absorption in the jobs.

Keywords : Quality Management System (QMS), customer satisfaction

A. Introduction

International Standard School Stubs (RSBI) as government measures to keep pace with the quality of education in the homeland. To be able as a school with a label RSBI, one standard that can be applied is to meet the particular requirements of Quality Management System (QMS) ISO 9001: 2008. To obtain a certificate, the school must show that the integrated teaching-learning process between theory and practice, service to students, parents and the community, including business and industry and government.

Until the year 2009, according to data from the Directorate of Vocational Ministry of National Education, the number of vocational RSBI as many as 247 schools. This amount will continue to be encouraged so that in the coming years every school in each district to have a vocational RSBI as stipulated by the Law Number 20 Year 2003 regarding National Education System of Republic of Indonesia, Paragraph 3 of Article 50 which states "The Government and / or local government hold at least one unit of education at all levels of education, to be developed into an international educational unit " and then the Government Regulation No. 19 of 2005 on National Education Standards in Article 61 Paragraph (1) states that: "The Government shared government held areas of at least one school in primary education and at least one secondary school education level to be developed into an international school ".

SMK Negeri 13 Bandung as the first school in West Java, won the certificate of Quality Management System (QMS) ISO 9001: 2000 from PT. TUV International Indonesia in 2005 and in 2009 was to upgrade the latest standards of QMS ISO 9001: 2008. The success of these schools achieved certification of ISO 9001 QMS: 2008 because the school organization's ability to apply good management system, supported by the competence of teachers, support staff and school members in learning and teaching, learning facilities and marketing graduates to support the Teaching and Learning.

B. Problems Statement

By looking at the phenomena and to guide writer in this study, the writer formulate the problem of "*How the effectiveness of the implementation of QMS ISO 9001: 2008 at SMK Negeri 13 Bandung in meeting customer satisfaction? "*, Which was later formulated in the following research questions:

1. How is the effectiveness of the implementation of Quality Management System ISO 9001: 2008 based on 8 on quality management principles in SMK 13 Bandung?
2. How the constraints in implementing the ISO 9001:2008 Quality Management System at SMK Negeri 13 Bandung?
3. How is the impact of the implementation of Quality Management System ISO 9001: 2008 on the performance of SMK Negeri 13 Bandung?

C. Quality Management Systems

Based on survey results in Susanti Vloeberghs and Bellens (1999) in Belgium showing the main reasons for implementing ISO 9000 are:

1) To improve the image quality of the organization in the market.
2) To increase efficiency and control organization.
3) To improve the quality of products and services.
4) To incorporate and expand market share.
5) Due to demand and / or questions from consumers.
6) The decision of company management.
7) The beginning is right for Total Quality Management.
8) Reduce the risk of product liability.

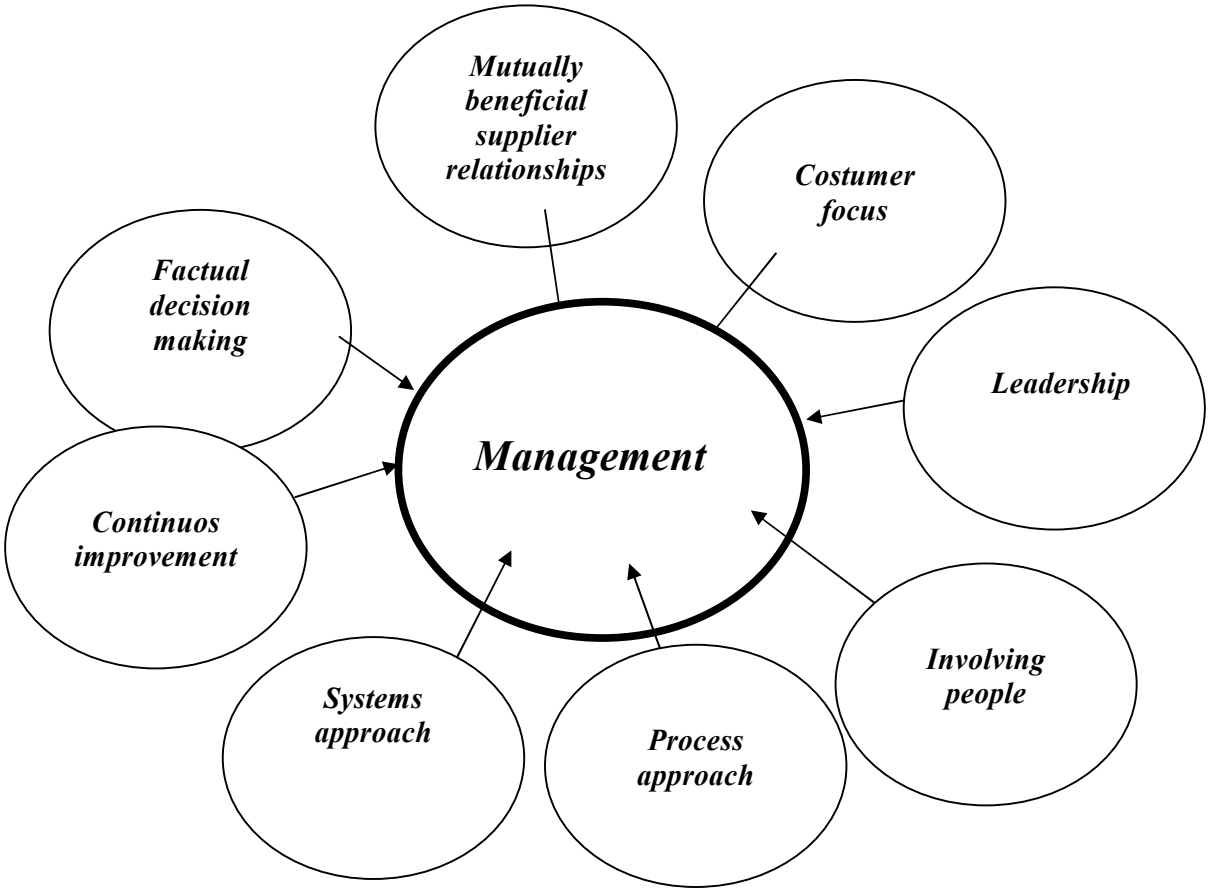
Similarly, the Department of Trade Industry said that function of ISO 9000 is " A set of co- ordinated activities to direct and control an organization in order to continuously improve the effectiveness and efficiency of its performance." Other opinions from Hoyle (2006:109-110) said that:

> " *ISO 9001 can be used in contractual situations where the customer requires its suppliers to demonstrate they have the capability to consistently produce product that meets customer requirements. The theory is that if suppliers can show they do all the things in ISO 9001, only conforming product would be shipped to customers. This would (in theory) reduce the need for customers to verify product on receipt. Third parties can also use the standard to assess the capability of organizations to provide product that meets customer and regulatory requirements. Organizations can use ISO 9001 as a model in designing their management systems providing they also use ISO 9000 and ISO 9004".*

It can be concluded from some of the discussions above, that is a reason for choosing the ISO implementation within an organization by the various advantages:

- ✓ Can be used by all profit and non-profit organization.
- ✓ Easy to apply, the language is clear, so easy to understand.
- ✓ To match the existing processes in the organization
- ✓ Encourage the improvement of organizational performance.
- ✓ Oriented to continuous improvement and efforts to increase customer satisfaction.
- ✓ Easy to integrate with other management system standards.

Implementation of quality management principles not only provide direct benefits to the quality management system design, but also contribute to gains on managing costs and risks. Effective quality management system can ensure that the activities in this regard is vocational education can be monitored.



Picture 1. The eight quality management principles (Hoyle 2006:26)

In the quality management system ISO 9001: 2008, there are eight quality management principles that integrate the clauses of ISO itself (Hoyle, 2006 : 26):

1. *Costumer focus*
2. *Leadership*

3. *Involving people*
4. *Process approach*
5. *Systems approach*
6. *Continuous improvement*
7. *Factual decision making*
8. *Mutually beneficial supplier relationships)*

D. Research Methods

This study aims to look at how far the effectiveness of the implementation of Quality Management System (QMS) ISO 9001: 2008 on vocational education in the application of 8 quality management principles, as an effort to meet customer satisfaction, which is expected to be used as a pattern to be applicable to prepare himself into a vocational school in-school through the international certificate of ISO 9001 QMS: 2008. In line with the above description, with a view of social phenomena or symptoms between one part with another part that cannot be separated and business researchers to disclose the data and understand the meaning behind the fact that there is a way into the direct source of research subjects through observation , in-depth interviews and the documentation study about the implementation of QMS ISO 9001: 2008 in SMK Negeri 13 Bandung, the approach used is analytical descriptive method with qualitative approaches. Use of the method and approach originates from the principal purpose of research, namely to describe and analyze the data and information field in accordance with actual conditions

E. Results

In accordance with the requirements of QMS ISO 9001: 2008 that the organizations that adopt this system must apply the 8 principles of quality management. From the findings in the field that the implementation of QMS ISO 9001: 2008 in SMK Negeri 13 Bandung, has been effective based on 8 quality management principles and in accordance with clauses of ISO itself. Some things that can be considered in the implementation, namely the management review every 6 months once used as a basis for decision making by top management level made continuous improvement in an effort to meet customer satisfaction.

To measure the successful implementation of QMS in the world of education/school, not the same as the indicators in manufacturing companies, because the core-business is clearly different. As described Slamet (1999), that the basic properties of the quality of services, containing the following elements: (1) Tangible (physical evidence), which include physical, equipment, staff / faculty, and the means of communication. For example, learning facilities (buildings), laboratory facilities, library facilities, instructional media, cafeteria, parking places, religious facilities, sports facilities, as well as performance clothing and faculty administrative staff, (2) Reliability, the ability to provide services promised immediate or rapid, accurate, and satisfying. For example, a subject that really fit with the needs, the schedule of learning, the learning process that is accurate, objective assessment, guidance and counseling, as well as all other activities to facilitate the learning process of students, (3) Responsiveness, that willingness of staff to assist the learners and provide rapid response services. For example approachable tutor consultation. Interactive learning process, enabling more students broaden thinking and creativity. Administrative procedures of the institution becomes more simple, (4) Assurance , which includes knowledge, competence, civility, respect for learners, and having a trustworthy character, free from dangers and doubts. For example, the entire administrative staff, faculty, and officials should really structurally competent institutions so that a positive reputation in the eyes of society, and (5) Empathy, namely the ease of doing relationships, good communication, personal attention, and understand the needs of the students. For example, the faculty knows students who follows learning process, teachers can really act according to its function, sincere attention is given to students to ease in obtaining services, hospitality and communications, to the satisfaction of internal customers: the facilities, teacher competence, service grade, services and academic and external customer satisfaction: the competence of graduates, the team work (team work) and attitude . In line with the opinion stated above, the size of the successful implementation QMS ISO 9001: 2008 in SMK Negeri 13 Bandung can the writer describe in the following indicators:

1. Learning productivity. Total percentage of subjects with a total face-to-face meeting in accordance with established standards, the total percentage of instructional materials that are available from the number of subjects that are maintained, the total percentage of the learning syllabus is available in accordance with the number of

prepared- learning, and the total percentage of teachers who attended in accordance with meeting standards that have been specified so that this also affects student achievement.

2. Productivity Teachers and Employees, the high percentage of his employees is so high.
3. Internal Process Efficiency, such as graduation rates each year the percentage of 100 percent without a jockey and the percentage of work units that can serve a timely manner.
4. Funding effectiveness, the fulfillment of the needs of schools through funding from Local Government, the availability of funds for human resource development of teachers and employees of Seta to develop educational facilities.
5. Availability of documents, availability of quality system documents and records related to the quality in place. Documents and quality records is clearly and consistently applied and easily retrieved and presented when needed.
6. Browse Documents convenience, the contents of the document is easily to see the chronological order of the work processes and so easy to know when there is a problem and quickly resolved, or find the solution. And this simplicity can avoid responsibility disjoint.
7. Quality Service, which recorded and documented the process with regular and consistent so that the quality of services produced will be better controlled by reducing the level of errors and inaccuracies of the services produced.
8. Customer complaints, giving satisfaction to the students and other stakeholders when there are complaints or complain of dissatisfaction in the organization of educational process.

F. Conclusions

Based on the description and analysis of data in Chapter IV, it can be concluded that:

First, the implementation of QMS ISO 9001: 2008 through 8 principles of quality management in SMK Negeri 13 Bandung has been effective, it is apparent on school efforts in the management of quality education which is marked with numbers so that the absorption of high school graduates who have been able to meet the customer satisfaction and has been embraced basic properties of the quality of education services.

Second, the constraints of implementation QMS ISO 9001: 2008 in SMK Negeri 13 Bandung concerning the change of attitude, mental attitude of all the elements that exist in school, low self-initiative, a sense of quality and sense of responsibility are the things that inhibit effective implementation of QMS ISO 9001: 2008, whereas HR, facilities and funds are not an issue.

Third, implementation of Quality Management System ISO 9001: 2008 in SMK Negeri 13 Bandung had an impact that is making the system work is a documented standard, ensuring that the process is carried out in accordance with established management system, improving employee morale as they feel the clarity of the work so that they work with efficiently, making the clarity between parts which was involved in performing a job, standardize the various policies and operating procedures which apply throughout the school organization, establishing a solid foundation in building attitude and a desire for any progress or on the organization's quality image to improve the efficiency and quality of graduates for the fulfillment of customer satisfaction which is marked by high rates of absorption in the world of employee.

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E-LEARNING READINESS OF VOCATIONAL SCHOOLS IN ENHANCING GLOBAL WORKFORCE

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Abstract

E-learning readiness is significant to the success of education programmes that utilize Information and Communication Technology (ICT) resources. This paper will discuss and analyze the E-learning readiness of vocational schools (SMK) in Yogyakarta Special Province in enhancing global workfroce.

Data were gathered from sample of vocational schools in Yogyakarta through direct observation of facilities and support infrastructure, in-depth interview, and questionnaire about the understanding of computers, ICT-based instruction and e-learning. Analysis was performed based on three factors: facilities and infrastructure readiness, human resource readiness and learning resources readiness.

The results show 1) Readiness of vocational schools in Yogyakarta in implementing e-learning from the aspect of infrastructure and facilities is sufficient but for complex content needs an upgrading to become higher specification. 2) Concerning aspects of human resources (teachers, students and employees) are sufficient but need to be enhanced in the future. 3) Concerning aspect of learning resources readiness is qualitatively still less sufficient, so it must be enhanced to implement e-learning based instruction.

Keywords : E-learning readiness, human resources, ICT, vocational school.

A. Introduction

The development of information and communication technology (ICT) got positive response from the people in the world. Various community have already implemented the information and communication technology (ICT) in their fields. Business fields have been implemented ICT in their business that was known as e-business or e-commerce, governments have been implemented ICT in their business that was known as e-government. Educational institutional have been implemented ICT in learning process that was known by e-learning (Farhad, 2001).

Ministry of National Education as an organization that works to manage education in Indonesia welcomes the development of ICT and include a curriculum that nuanced of information and communication technology, especially in high school and vocational school. This response indicates that the government consider development of information and communication technology in enhancing global workfroce. This policy aims to enable students to have the ability in recognizing, understanding, and interacting with everyone in the world.

Vocational school as one of the education institutions needs to equip students and graduates with skills appropriate including the competence of ICT. Demands that must be implemented to schools in the implementation process of learning that utilizes information and communication technologies face many obstacles that are not simple. The main problem frequently faced by the schools and teachers is the limited infrastructure, human resources and learning resources.

B. E-Learning-based Instructions

There are many definitions about e-learning, but in this article e-learning define as the delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material. (Stockley, D, 2006). E-learning can involve a greater variety of equipment than online training or education, for as the name implies, "online" involves using the Internet or an Intranet. Flash Dish, Hard disk, CD-ROM and DVD can be used to store and provide learning materials.

Electronic learning or e-learning is a type of technology supported education/learning (TSL) where the medium of instruction is through computer technology, particularly involving digital technologies (Wikipedia). E-learning has been defined as "pedagogy empowered by digital technology". In some instances, no face to face interaction takes place. E-learning is used interchangeably in a wide variety of contexts. In companies, it refers to the strategies that use the company network to deliver training courses to employees. In the United States, it is defined as a planned teaching/learning experience that uses a wide spectrum of technologies, mainly Internet or computer-based, to reach learners. Lately in most education institutions, e-learning is used to define a specific mode to attend a course or programs of study where the students rarely, if ever, attend face-to-face for on-campus access to educational facilities, because they study online.

In higher education especially, the increasing tendency is to create a virtual learning environment (VLE) (which is sometimes combined with a management information systems (MIS) to create a Managed Learning Information Environment in which all aspects of a course are handled through a consistent user interface standard throughout the institution (Agboola, 2006). A growing number of physical vocational schools, as well as newer online-only schools, have begun to offer a select set of academic degree and certificate programs via the Internet at a wide range of levels and in a wide range of disciplines. While some programs require students to attend some campus classes or orientations, many are delivered completely online. In addition, several educations institutions offer online student support services, such as online advising and registration, e-counseling, online textbook purchase, student governments and student newspapers.

E-learning can also refer to educational web sites such as those offering learning scenarios, worksheets and interactive exercises for children (Alan, 2006). The term is also used extensively in the business sector where it generally refers to cost-effective online training. The recent trend in the e-learning sector is screen casting. There are many screencasting tools available but the latest buzz is all about the web based screencasting tools which allow the users to create screencasts directly from their browser and make the video available online so that the viewers can stream the video directly. The advantage of such tools is that it gives the presenter the ability to show his ideas and flow of thoughts rather than simply explain them, which may be more confusing when delivered via simple text instructions. With the combination of video and audio, the expert can mimic the one on one experience of the classroom and deliver clear, complete instructions. From the learners point of view this provides the ability to pause and rewind and gives the learner the advantage to move at their own pace, something a classroom cannot always offer

C. Conceptual Framework

E-learning readiness assessment allows one to design comprehensive e-learning strategies and effectively implement ICT goals. In this paper, “e-learning readiness” is defined as the capacity to pursue opportunities facilitated by the use of e-learning resources such as the internet (Kaur, et al., 2004). An e-learning readiness assessment therefore calibrates the degree of ability and the capacity to pursue knowledge in a

specific context. Because different groups of people, or different nations and populations, have different ways of responding to knowledge-oriented initiatives, e-learning readiness studies have to take into account the particular influences that are brought to bear upon each situation, institution or learning programme. For this reason, this paper focuses on the capacity of Vocational School receivers and enablers to engage in e-learning pathways designed and implemented for the purpose of knowledge construction within e-learning educational programmes.

E-learning readiness will be measured and analyze on three factor that influenced to successfully implemented e-learning systems (Ali, et al, 2007). Three factors will be measured include:

1. Technology Readiness

The readiness of facilities and infrastructure is a form of school readiness preparation resource-based learning technology to make e-learning. The components of infrastructure include :

a. Hardware

Hardware readiness can be seen from the number and quality of the tools and peripherals of computer systems that supported e-learning. The hardware readiness included :

- Server
- Database Server.
- Client Computer
- Hub/Switch
- Communication technology

b. Software

Development of e-learning systems require software and hardware. Because e-learning system to be developed is based on the network so that the necessary application software covering:

- Operating System Software
- Web Server
- Database Server
- Web Viewer,
- Web Browser
- Learning Management System (LMS)

2. Human Resources Readiness

Human resources are the backbone of the success of e-learning based instruction. The readiness of human resources can be measured from the knowledge and skills to use ICT tools in learning process. There are three element of human resources that must be considered in e-learning systems, they are:

a. Teachers
b. Students
c. Technicians

3. Learning Resources Readiness

Learning Resources are material that will be learn by students in learning process. In most traditional learning processes, learning resources are still using books, modules, teaching materials printed on paper. Learning resources in e-learning can not use conventional learning resources, but must use digital learning resources. Learning resources that used in e-learning include:

a. Printed Learning Material

   Learning or Teaching materials in printed form on paper is one source of learning processes, commonly used in the present study. In the process of teachers learning to read books and teaching materials in teachers' attention, reading, doing assignments, summarize, evaluate the material being taught. In e-learning based instruction, learning materials like these can be used as a complement to the document that is uploaded on the e-learning.

b. Digital Interactive Learing Media

   Along with the development of multimedia technology, today many developed multimedia-based interactive learning media. Instructional media is usually packed in the form of CD learning and can be run with either the computer or on a personal computer connected to the internet network. Interactive learning media typically uses an interesting display with animation techniques to explain the material that is abstract, such as electric fields, magnetic fields, electromagnetic induction, circulatory systems, gasoline engines work, and others.

c. Digital Learning Material

   Learning materials that can be uploaded on the Internet and e-learning is the material in digital format. Since many existing digital file format to be agreed

using the file format where that communication between teachers and students become better. Generally to reduce the size of digital files used in data compression formats Zip, Rar or any other compression formats.

D. Method

Method is the steps being taken to achieve the goals set. E-learning readiness of vocational school in Yogyakarta will use qualitative and descriptive approach. Measurement the e-learning readiness of vocational school in Yogyakarta use observation to the supporting infrastructure, depth interview to human resources (teachers, students and technicians), and questionnaire about the computer knowledge, e-learning knowledge and skill in ICT based instruction. The choice of sample was determined by taking five random of vocational school in Yogyakarta.

Data Analysis Technique

Methods and instruments that were used to collect data conducted in the following ways :

- Concerning the readiness of facilities and physical infrastructure, was done by direct observation.
- Concerning the readiness of human resources, was done by in-depth interview and questionnaire to the teachers, students and technician.
- Concerning the readiness of learning sources, was done by portfolio.

Instruments that used to measure the readiness of human resources that was done by questionnaire with likert scale. For the purposes of quantitative analysis, the respective answers are given scores as follows:

Criteria	Score
• Very god	4
• God	3
• Enough	2
• Bad	1
• Very Bad	0

E. Result

1. Technology and Infrastructure Readiness

   Based on observations of the infrastructure in vocational schools in Yogyakarta were obtained the following data:

No.	Aspect	Explanation
1.	Computer laboratory availability	Sufficient with the amount over two or more
2.	Number of computer in laboratory	Sufficient with the amount per lab ranges 10-20
3.	Computer Specification	Enough (Equal with P2, P3, P4, Core2Duo)
4.	Computer Network	Sufficient
5.	Internet Access	Enough
6.	Original and Legal Software availability	Very Less sufficient
7.	Utility open source software	Very limited

2. Human Resources Readiness

a. Teachers

No.	Aspect	Score	Percentage	Explanation
1.	Knowledge of computer	3,12	78 %	Good
2.	Skills using ICT in learning	2,97	74 %	Good
3.	E-learning Knowledge	3,02	75 %	Good
4.	Skills of communicating with the ICT and E-learning	2,60	65 %	Less sufficient

b. Students

No.	Aspect	Score	Percentage	Explanation
1.	Knowledge of computer	3,02	75 %	Good
2.	Skills using ICT in learning processes	2,62	65 %	Less sufficient
3.	E-learning Knowledge	3,05	76 %	Good
4.	Skills of communicating with the ICT and E-learning	2,24	56 %	Less sufficient

c. Technicians

No.	Aspect	Score	Percentage	Explanation
1.	Knowledge of computer	3,42	86 %	Very Good
2.	E-learning Knowledge	2,68	57 %	Less sufficient
3.	Skill in Admin E-Learning	2,34	58 %	Less sufficient

3. Learning Resources Readiness

No.	Aspect	Explanation
1.	Teaching material availability (printed)	Good
2.	Learning media availability	Less sufficient
3.	Digital teaching material availability	Less sufficient

a. Discussion

Based on the data can be analyzed that e-learning readiness in vocational school in Yogyakarta, in implementing e-learning can be specified:

- Technology Readiness such as the availability of laboratories, computers, computer specification, computer networks and internet access were enough, but need to utilize open source software. Categories sufficient means to implement e-learning based instruction could be done with a simple item that is good considering the limited quality of computers and bandwidth for Internet access. As one possible solution is to design e-learning for local purposes in the school who can access e-learning. With this restriction the implementation of e-learning can be enhanced with interactive instructional media content with a good multimedia animation.
- Human resources readiness can be analyzed from the knowledge and skills of teachers, students and technicians. Similarly, to the knowledge about e-learning, although limited in terms of theory. But for its utilization is still less both teachers and students. While readiness technician to support the learning e-learning is still less.
- Learning Resources can be said that the vocational schools in Yogyakarta are still not ready to implement e-learning based instruction. Some are already there who are ready but if viewed as a whole will generate on average a low.

F. Conclusion

1. Technology and infrastructure readiness is sufficient, but for complex learning content still needs improvement and upgrading of existing facilities and infrastructure.
2. Human resources readiness (teachers, students and technicians) in terms of general knowledge of computers and ICT is good enough, but still lack the skills to implementing e-learning, so the human resources should be increased with sort training.
3. Learning resources readiness is still less sufficient, so to implement e-learning must be produce learning resources in digital format.

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