RCP
Regional
Cooperation
Platform

Precondition for an extra-occupational study program for vocational teacher in Indonesia

Sentot Wijanarka

Imprint

Editors

Paryono Paryono, Bandar Seri Begawan, Brunei Darussalam
Thomas Schröder, Shanghai, China
Georg Spöttl, Bremen, Germany

Author

Sentot Wijanarka

Participating Researchers

Sunaryo Sunarto
Istanto Wahyu Jatmiko
Moh Khairudin,
Losina Purnastuti,
Dewi Eka Murniati,
Ratna Wardani
Retno Hidayah,
Denies Prihantinah,

Partner

Nor Lisa Sulaiman (FTVE, UTHM Malaysia)
Kahirol Mohd Salleh (FTVE, UTHM Malaysia)

RCP Secretariat and
GIZ office in Shanghai/ China

Chinese-German Building 1109
Tongji University, 1239 Siping Street
200092 Shanghai, China
T + 86 (0) 21 6598 0423
F + 86 (0) 21 6598 5145
E giz-china@giz.de
W www.giz.de

Project:

Regional Cooperation Platform for Vocational Teacher Education in Asia (RCP)
GIZ-Programme Director: Helmut Schönleber
Director of RCP Secretariat: Dr Thomas Schröder

Editors:	Regional Cooperation Platform for Vocational Teacher Education in Asia (RCP)
Layout & Design:	Gaby Tobler
Place:	Shanghai, P.R. China
Date of Publication:	October 2013

Preface

The number of vocational schools in Indonesia is the highest in ASEAN. Thus the need for vocational teachers in Indonesia is also the largest. Vocational teacher education in ASEAN and China is the field of study of the RCP from 2011 until 2014. Field of study include: number, areas of expertise, competence, and quality of vocational teachers. In some ASEAN countries vocational education and vocational teacher education is very different in some ways because of the different educational systems are used.

The purpose of this research project is to examine the pre-condition for the development of part-time courses for vocational teacher education in Indonesia. Pre-conditions include the components: the availability of vocational teacher education institutions, the availability of the Internet, the existence of basic laws and regulations, the authorized agency for accreditation of study programs, and agencies may be invited to collaborate in the part-time study program. Apart from that these components compared with the condition of vocational teacher education in Malaysia (UTHM).

The research team would like to thank to those who helped in the preparation of this report, namely: elearning management UM Malang, manager of YSU elearning, elearning manager of VEDC Malang, elearning manager PEDC Bandung, PPGT YSU students, and team of researchers of UTHM Malaysia.

Yogyakarta, March 21, 2014

Research Team, Faculty of Engineering

Yogyakarta State University

Table of Content

List of Abbreviations

ADTEC	Advanced Technology Training Center
BAN PT	National Accreditation Board for Higher Education
CAL-CBT	Computer-Aided-Learning Computer-Based Training
CIAST	Centre for Instructions and Advanced Skills Training
CPSC	Colombo Plan Staff College for Technical Education
DE	Distance Education
FKIP	Faculty of Education and Teacher Training
FTek	Faculty of Technical Education
FTVE	Faculty of Technical and Vocational Education
GEC	General Certificate of Education
ICT	Information and Communication Technology
IGTKI	Association of Indonesian Kindergarten Teachers
IKBM	National Youth Skills Institute
ILP	Industrial Training Institute
IPG KPT	Institut Pendidikan Guru Kampus Pendidikan Teknik
ITE	Institute of Teacher Education
JICA	Japan International Cooperation Agency
KUiTTHO	Kolej Universiti Teknologi Tun Hussein Onn
MA	Madrasah Aliyah
MOE	Ministry of Education
MOHE	Ministry of Higher Education
MQA	Malaysian Qualifications Agency
MSU	Malang State University
NOSS	National Occupational Skills Standards
OPP3	Third Outline Perspective Plan
PLPG	Teacher Education and Professional Training
PPGT	Pendidikan Profesi Guru Terintegrasi
PPL	Program Pengalaman Lapangan
PTPTN	Perbadanan Tabung Pendidikan Tinggi Nasional
RCP	Regional Cooperation Platform

RPE	Recognition of Prior Experience
RPL	Recognition of Prior Learning
RRI	Radio Republik Indonesia
SPM	Sijil Pelajaran Malaysia
STPM	Sijil Tinggi Persekolahan Malaysia
TATI	Terengganu Advanced Technical Institute
TED	Teacher Education Division
TEDC	Technical Education Development Center
TT-TVET	Teachers Training in Technical and Vocational Education and Training
TVE	Technical and Vocational Education
TVET	Technical and Vocational Education and Training
TVRI	Televisi Republik Indonesia
UNS	University of Surakarta
UPBJJ-UT	Distance Learning Program Unit of the Open University
VEDC	Vocational Education Development Center
VHS	Vocational High Schools
YSU	Yogyakarta State University

List of Figures

List of Tables

Abstract

The aimed of the study is: (1) describe the legal preconditions need to be respected for a development and implementation of extra occupational study program and what bodies are in charge; (2) evaluate the institutions are in charge for the accreditation of study programs and the conditions, (3) Evaluate the availability of computers and internet connection for the participants, and (4) describe the similar study programs that could partially be incorporated.

This study used qualitative research methods. Participants in this study were university education or teacher education profession in Indonesia and UTHM Malaysia, the user / manager eLearning at two universities and two vocational teacher training institutions, and vocational schools. Methods of data collection using: documentation of laws and government regulations, web surveys, interviews, and questionnaires. Data were analyzed using qualitative descriptive analysis, and componential analysis. The data about vocational teacher training was compared between those on Indonesia and Malaysia.

The result of the study: (1) There are many legal preconditions for the development of extra occupational study program of teacher profession education in Indonesia and Malaysia, include: laws, regulations, and manuals. Institution that are charged to organize professional education is teacher training universities, (2) College National accreditation board of higher education is the agency in charge of accrediting professional courses, (3) all teacher training universities have the utilities to implement eLearning and distance learning, (4) Institutions can work with are: polytechnics, colleges, and Open university.

Keywords: *vocational teacher, extra-occupational study program*

1 Introduction

1.1 Background of the research project

Teachers' position as professionals in primary education, secondary education, and early childhood education in formal education are appointed in accordance with Indonesian legislation (Law no. 14 2005 on Teachers and Lecturers, chapter 2). Basic education includes primary schools, secondary education is junior high school, and early childhood education is kindergarten. Secondary education consists of general education or high schools, as well as vocational education or vocational schools.

At the same law, chapters 8 and 10 explain that the teacher competencies include: pedagogical competence, personal competence, social competency, and professional competency that can be acquired through professional education. Pedagogical competencies include: mastering the characteristics of learners, planning and implementation learning, developing the learners, ability to communicate, using the information and communication technology (ICT), evaluating learning outcomes, and reflecting the results of the evaluation. Personal competencies include: personal appearance, character, work ethic, and a code of ethics implemention. Social competencies include: communication, attitude, and adaptation. Professional competencies cover: mastery on teaching materials, develop teaching materials, mastery the competency standards of the material being taught, as well as make use of information and communication technology to develop themselves (Regulation of the Minister of National Education No. 16 of 2007).

Currently, the number of vocational schools in Indonesia are as large as 11.707, with the details as following: the number of public schools are 3.026, and 8.681 private schools. The number of vocational high school students in Indonesia are 3.780.825 people, and the number of vocational teachers are 141.988 people (http://www.pdsp.kemdikbud.go.id/). If the ratio between teachers and students is 1:16, the needs of new teachers are 65.392 people. According to the data from the directorate of secondary education and higher education directorate, the shortage of vocational schools teachers are 5.980 for the theory teachers, and 18.165 of practice teacher. Furthermore, with the government's plan to build 150 more vocational high schools in 2013 and 200 more vocational schools in 2014, the vocational teacher shortage will be even worse.

The lack of highly qualified teachers and trainers who can perform well in the sector of Technical and Vocational Education and Training (TVET) is a pervasive phenomenon in emerging economies in the ASEAN region. Teaching staff not only directly influences the quality of the workforce but also have direct impact on additional functions such as social integration and the support of regional learning and innovation processes. This implies that teaching personnel are at the highest technical and vocational pedagogic levels and are urgently needed in order to respond to the requirements of the economic and educational reform goals.

The Indonesian Government has set some requirements to become teachers at all levels of education. The requirements to be a professional teacher are: owing a diploma S1 or D IV degree, and attaining a teaching certificate. However, teacher certification process until now have not been able to reach out to all the teachers who are currently teaching. The Indonesian government limitation on the amount of teacher's certification and some of vocational teachers who do not meet the eligibility for getting the certification inhibit the process of certification to all teachers. Moreover, the certification process for the graduates of vocational teacher education in the university has not been initiated yet up to now.

Therefore, to start with, Indonesian government conducts a professional teachers education program that is implemented in-service professional education, and integratedwith/in professional education for teachers of vocational high school in 2011. The previous professional teacher education by conventional methods would take a long time and a very costly. Therefore, the new integrated program is arranged and sets up as a trial program. The program employs face-to-face and internships learning methods. (http://majubersama.dikti.go.id/?page_id=405#). The integrated professional teachers education for vocational school is supervised under the Director of Teacher and Education and conducted in 10 universities of education and one faculty of education. The providers of the integrated professional education of vocational teachers including: (1) State University of Medan, (2) State University of Padang, (3) Education University Indonesia (UPI), (4) State University of Jakarta, (5) State University of Semarang, (6) Yogyakarta State University , (7) State University of Surabaya, (8) State University of Malang, (9) State University of Makasar, (10) State University of Manado, and (11) Sebelas Maret State University. Those universities are given the task to organize teacher's professional education for teachers in the field of: automotive engineering, geology and mining, information and communication technology, refrigeration and air-conditioning engineering, fashion technology, agribusiness of farm products, agribusiness production of marine resources, shipping, aircraft technology, shipbuilding techniques, and tourism. Nevertheless, some of those fields are not available or taught in those vocational education universities. Instead, those fields are provided by general universities.The number of the participants can be seen in Table A2 in appendix.

There are two kind of teaching profession programs for vocational teachers. Firstly, an integrated collaborative teacher professional education for D IV graduates, with participants of 120 people per year. The education courses duration is one year. Secondly, an integrated professional education teacher for high school graduates with participants of 464 people in 2011, and 500 in 2012 (details of the number of participants can be seen in Table A1, Table A2 and Table A3 in the appendix). This educational courses take 5 years study. Currently the estimated number of graduates of vocational teacher training in all college of education are about 5967 people (the detail of study program is in Table in appendix A1). The College of Education runs 28 study programs, while vocational schools have 40 study programs (121 expertise programs). These two kinds of the teacher education program will produce approximately 600 graduates each year in the next 2016.

According to the Ministry of National Education (2007: 42-49), the model of professional teacher education programs consist of: hybrid models, integrated models, self-face models, face-to-face models,

and distance learning models. Nevertheless, the learning model that has been implemented at the moment is mostly face-to-face model. The model of distance learning using e-learning has not been applied because of the unavailability of facilities such as the communication network and lack of human resources to design the distance learning materials, learning processes, and learning evaluation in some locations outside Java Island.

Based on the above explanation, it is necessary to study the establishment of the new program for new graduates and teachers who have not possess teaching certificate yet. The study program should be as an extra occupational/ part time course, which can be followed by those who are already working in the company or teach in schools without leaving their job. A part-time study or dual studies or extra-occupational study is a study in which the student is in an employment relationship during the whole training, at the same time an academic degree is earned (http://de.wikipedia.org/wiki/Berufsbegleitendes_Studium). A part-time study program is a translation of the German language (Ein berufsbegleitendes Studium). Part-time study program is held at the college for a wide range of expertise and profession. The learning strategy used for the study program is blended learning, which combines e-learning and face to face model. Blended learning is used by many factories to support training program for their employees (Lutz Goertz, 2010). Media required for the process of learning is new media, or blended learning (a combination of distance learning, face to face, and internships in the school). Blended learning approach to learning with the help of information and communication technologies is very likely implemented to address the gap between spectrums of fields of study in the university with the expertise in vocational schools.

1.2 Problems identification

Based on the background of the above problems, the problems can be identified as follow:

1) Vocational schools still require a lot of teachers especially practice/productive teacher for the study program that have not yet produced by college of education. Vocational teacher training in the College of education only has 28 courses, while vocational schools require 40 programs of study (consist of 121 competency skills/ occupations).
2) Professional education of teachers that currently exist, have not been able to meet the needs of teachers because of the number of vocational teacher shortage. The number of graduates of profession education for vocational teacher currently only 600 people per year (estimated in 2016), while vocational teachers required is 18.165 in this year. These needs will be greater with the new vocational school that will be built in 2013 and 2014.
3) The application of the face to face method in profession teacher education, will limit the study opportunity for graduates S1 and D IV in regards to the wide size of the territory of Indonesia, hence makes fulfilling of vocational teachers cannot be implemented quickly.

1.3 Research problems

Based on the background of the problem and identification of the above problems, the formulation of the research problem is:

1) What legal preconditions need to be respected for a development and implementation of extra occupational study program and what bodies are in charge?
2) What institutions are in charge for the accreditation of study programs and what are the conditions?
3) Is the availability of computers and internet connection for the participants sufficient?
4) Are there already similar study programs available that could partially be incorporated?

1.4 Research focus

The focus of the research is the implementation of the profession education of teachers for vocational high schools in Indonesia. In addition, research is focused on the pre-conditions for implementation of extra occupation of teacher profession education.

2 Literature and Regulation Review

2.1 Education system

2.1.1 *Indonesia higher education system*

Higher Education system in Indonesia is defined and regulated by Law No.12, 2012 as follows: Higher Education is education after secondary education that includes diploma program, graduate program, master program, doctoral program, professional program, as well as specialized program, and is organized by the college based on the Indonesian culture. The forms of Higher Education consist of: universities, institutes, colleges, polytechnics, academies, and community colleges. The higher education system can be seen in Figure 1.

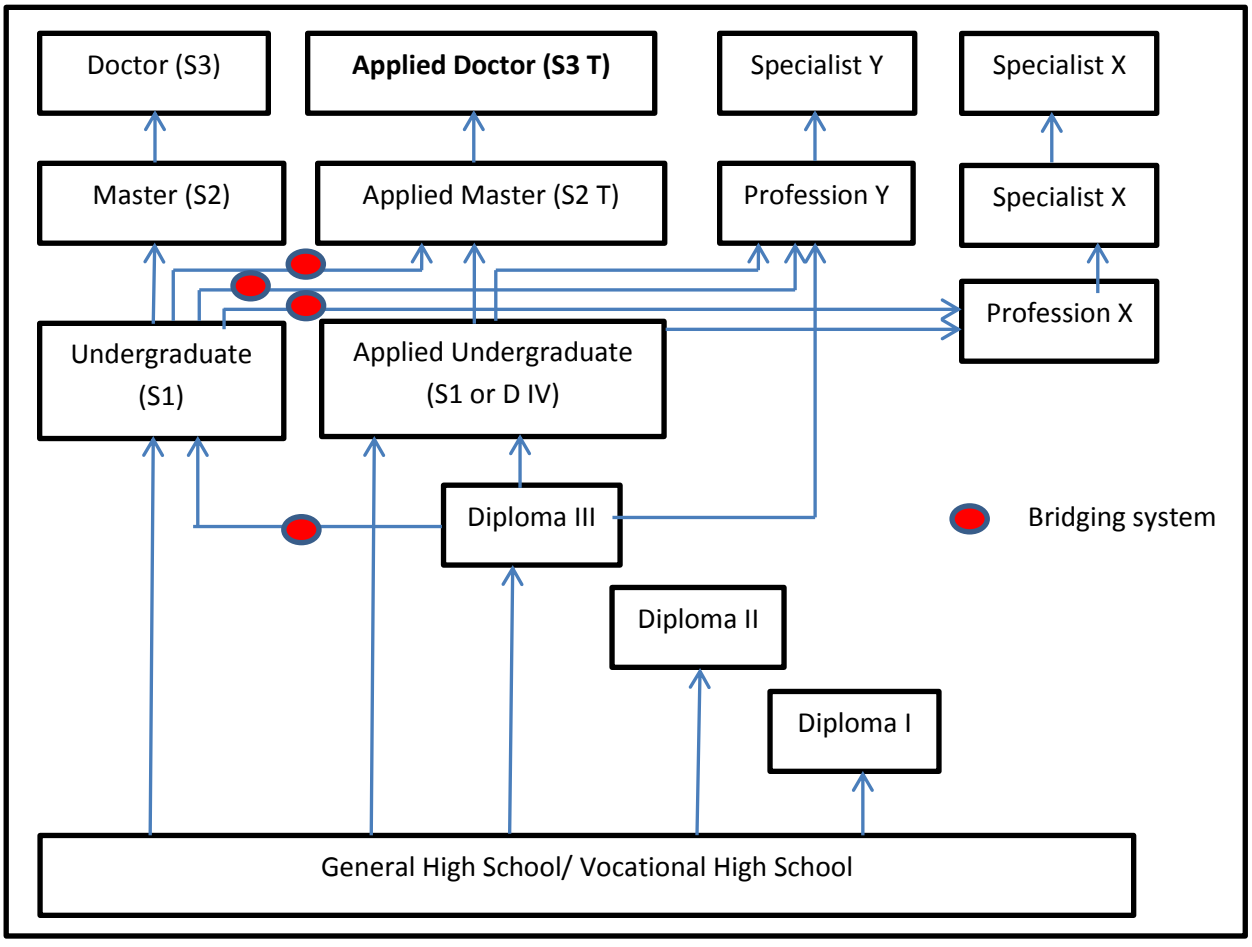


Figure 1: Indonesia Higher Education System

The higher education in Indonesia has three types, namely: academic education, vocational education and professional education. Academic education is a Higher Education degree program and/or graduate

programs aimed at the acquisition and development of branches of Science and Technology. Vocational education is higher education diploma program that prepares students to work with a specific applied expertise. Vocational education can be developed by the government until the applied master study program, or applied doctoral study program. Professional education is higher education after an undergraduate program that prepares students for jobs that require special skills requirements. Professional education can be organized by the College in collaboration with the Ministry of National Education or other Ministry of non- Educations Institutions, and/or professional organizations that are responsible for the quality of professional services.

At the university level (academic programmes), programmes normally last for four years (equivalent to 140- 160 credits) that lead to the S1 (bachelor) degree. Therefore, he/she can continue the study for S2 (master) degree for a about two years (or 36-50 credits) plus 8-10 credits for final paper. Next, the doctoral degree (S3) can be achieved typically for three years (40–60 credits). The education for getting 'Specialist" is practically-oriented programs leading to the award of Specialist1 and Specialist 2 diplomas, mainly in the field of medical specializations. Higher professional education institutions (academies, polytechnics, colleges, and institutes) as well as universities offer a range of practically-oriented programs which last for one to four years leading to award of a diploma (D1 to D4, the latter comparable to the bachelor's degree).

The curriculum of higher education is a set of plans and arrangements regarding the purpose, content, teaching materials and methods used to guide the organization of learning activities to achieve the objectives of Higher Education. The Higher Education Curriculum is developed by each university based on the National Standards for Higher Education studies for each program that includes the development of intellectual, noble character, and skills. Vocational education curriculum is prepared jointly by the professions society and professional organizations that are responsible for the quality of professional services in order to assess the professional competence. Thus vocational education has covered profession education. Professional education curriculum formulated with the Ministry, the Ministry of the other, non-ministerial Institutions, and / or professional organizations that are responsible for the quality of professional services with National Standards for Higher Education reference.

National Standards for Higher Education is the unit that includes national education standards, coupled with research standards, and community service standards. National Standards for Higher Education is developed with attention to academic freedom, academic freedom of the pulpit, and the autonomy of science to achieve the goal of higher education. In developing Standards of Higher Education, universities have the flexibility organize the fulfillment of the National Standards for Higher Education.

Most of the learning process at universities in Indonesia use face-to-face or regular classes which include: theory lectures, lab, and field study. Public universities are not allowed to hold a remote class or part-time study program. Distance education is organized by the Open University. Distance education is a learning process that is performed remotely through the use of various communication media. Distance education aims to: provide higher education services to community groups who cannot attend face-to-face education

or regular, and expand access to higher education and facilitate services in education and learning. Distance education are maintained in various forms, modes, and supported by means of coverage and service learning and assessment system that ensure the quality of graduates in accordance with the National Standards for Higher Education.

2.1.2 Vocational education in Indonesia

Vocational education in Indonesia consists of two levels, namely: secondary vocational education and higher vocational education. The legal basis of secondary vocational education is the Constitution Act Article 18 of the national education system, while the legal basis of higher vocational education is the Constitution Act Article 20 of the national education system. Vocational education training is coordinated by the Directorate of vocational schools, while higher vocational education is coordinated by the directorate of higher education.

Vocational education in Indonesia organized by high schools (SMK), polytechnics, colleges, and universities. Vocational schools (SMK) in Indonesia are organized according to areas of expertise skill spectrum of secondary vocational education (Decree of the Director General of Primary and Secondary Education Management Number: 251/C/KEP/MN/2008, dated August 22, 2008). The spectrum of expertise vocational education consists of six subject areas of expertise, namely: (1) Engineering and Technology, (2) Information and Communication Technology, (3) Health, (4) Arts, crafts, and tourism, (5) Agribusiness Agro, and (6) Business and Management which altogether hold 121 competency skills.

Polytechnics, colleges, and universities provides vocational education at Diploma level I, II, III, and IV. Specifically, the course of study at the polytechnic expertise tailored to the needs of expertise in the world of work.

2.1.3 Malaysian Education system

The Malaysian education system is governed by two Ministries, the Higher Education Ministry and the Ministry of Education. Pre-tertiary education including - from pre-school to secondary education - and teacher education is under the jurisdiction of the Ministry of Education (MOE), while higher education is the responsibility of the Ministry of Higher Education (MOHE). In general, Malaysia has a centralized education system with all the funding for educations sectors coming from the Federal Government remarked by Nagappan (2001).

Schooling begins as soon as a child turns to age of four then the parents send their children to the pre-schools. Even though pre-school is not compulsory, in many cases the parents would send their children for the preparation before entering primary school. Thus, pre-school education is made part of the national education system and governed by the Education Act 1996 (Malaysian Government, 2006). When a child reaches the age of seven, he or she will enter the first year of the six years compulsory primary education. This is followed by five years of education at the secondary level. In total, Malaysian government provides 11 years of free primary and secondary education. Students sit for common public

examinations at the end of primary lower secondary, and upper secondary levels (Malaysian Certificate of Education). Every child in Malaysia is provided with opportunities for equal access to an education that will enable the child to achieve his or her potential (Malaysia Government, 2012).

School leavers with Malaysian Examination Certificate or *Sijil Pelajaran Malaysia* (SPM) qualifications can opt to continue their education at post-secondary school education programs, matriculation programs, or pre-university programs to obtain a pre-university qualification. They can also further their education at tertiary or higher education institutions leading to the award of a certificate or diploma. Polytechnics and community colleges are some of the public higher institutions that offer such programs. At higher education level, study opportunities include certificate, diploma, and undergraduate as well as postgraduate studies. However, decision on further education depends largely on the individual factors such as their academic ability and financial capability.

Undergraduate studies consist of bachelor degree levels and professional studies while postgraduate studies include masters and doctoral degrees. Generally speaking, higher education at the diploma level is for secondary school certificate holders (SPM) from the age of 17 onwards whereas pursuing a bachelor degree requires post-secondary qualifications such as a Malaysian Higher School Certificate or *Sijil Tinggi Persekolahan Malaysia* (STPM), matriculation certificate, General Certificate of Education (GEC) 'A' level or other equivalent pre-university qualifications (Figure 2).

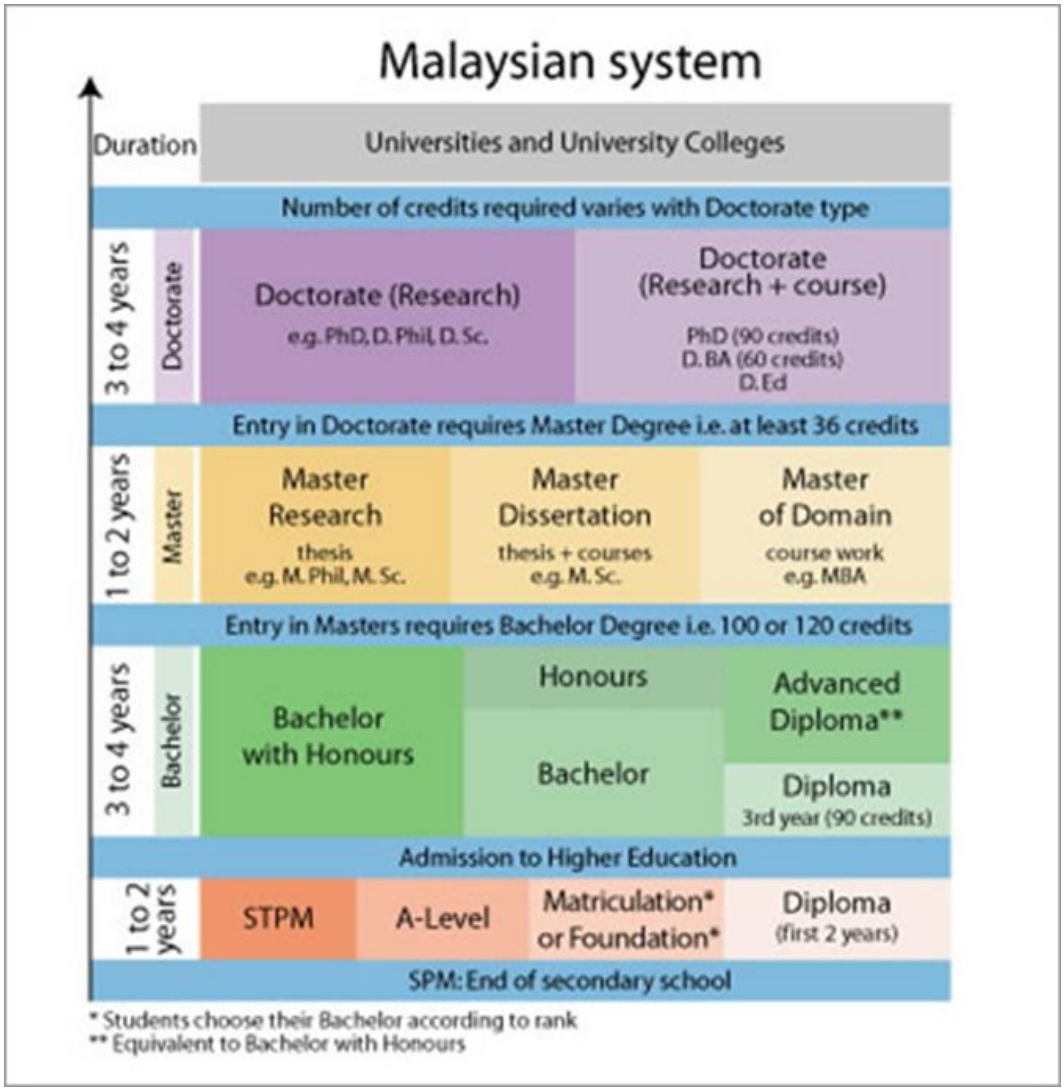


Figure 2: Malaysian Higher Education System (http://www.mfuc.org/studying-in-malaysia/default.php)

The higher education sector is under the jurisdiction of the Ministry of Higher Education (MOHE). The establishment of this ministry on 27 March 2004 was a result of the re-structuring of the Ministry of Education and marked as an important part of history in Malaysia, particularly in the development and expansion of the higher education sector. The establishment of MOHE is in line with the vision of the government in making Malaysia a centre of educational excellence and internationalizing Malaysian education. MOHE is the governing authority for the Malaysian higher education sector. It oversees HEIs (both public universities and private higher educational institutions), community colleges, polytechnics and other government agencies involved in higher education activities such as the Malaysian Qualifications Agency, the National Higher Education Fund Corporation (Perbadanan Tabung Pendidikan Tinggi Nasional – PTPTN), the Tunku Abdul Rahman Foundation (Yayasan Tunku Abdul Rahman) and others (http://www.mfuc.org/studying-in-malaysia/default.php).

The quality of higher education is assured through the Malaysian Qualifications Agency (MQA) which undertakes the implementation of the Malaysian Qualifications Framework. MQA is also responsible for quality assurance and the accreditation of courses and other related functions, covering both public and private higher educational institutions.

The provision of higher education is well regulated. Below are some of the legislations:

1) The Education Act 1996 (Act 550)
2) The Private Higher Educational Institutions Act, 1996 (amended 2009)
3) The National Council of Higher Education Act, 1996
4) Malaysian Qualifications Agency Act 2007 (replacing the previous namely National Accreditation Board Act 1996 which has been repealed)
5) The Universities and University Colleges (Amendment) Act, 1996 (amended 2009)
6) The National Higher Education Fund Corporation Act, 1997 (Amendment 2000).

2.1.4 Technical and vocational education system in Malaysia

From agricultural-based economy, Malaysia has changed its economic policy by focusing on industrialization beginning early 80's (Drabble, 2000). Since then, the needs for Malaysian high skilled workers have increased due to the demand by industries, businesses, and public sectors. Electrical and electronics, mechanical as well as civil engineering, manufacturing, agricultural, and hospitality are among the types of occupation associated with skills acquisitions (Malaysia Standard Classification of Occupation, 2008). The exact number and types of occupation in Malaysia cannot be explained implicitly in this paper. However, Figure 2.3 below indicates twenty-two (22) major skilled occupations for today's market in Malaysia based on credential sources from the Ministry of Human Resources Malaysia.

Table 1: **List of Skilled Occupations in Malaysia (Malaysia Standard Classification of Occupation, 2008; and Labor Force Statistic Malaysia, 2011)**

Skilled Occupations in Malaysia			
1.	Technicians and associate professionals	12.	Packaging
2.	Plant and machine-operators and assemblers	13.	Landscaping and Environmental
3.	Agriculture, forestry and fishing	14.	Machinery and equipment
4.	Manufacturing	15.	Electrical and Electronic, Telecommunication and Broadcasting System
5.	Electricity, gas, steam and air conditioning supply	16.	Hospitality and Tourism
6.	Construction	17.	Transportation
7.	Wholesale and retail trade; repair of motor vehicles and motorcycles	18.	Mechanical and Electrical Service and Maintenance
8.	Mining and quarrying	19.	Materials
9.	Water supply, sewerage, waste management and remediation activities	20.	Oil and Gas
10.	Accommodation and food service activities	21.	Business Management
11.	Financial and Insurance	22.	Fashion and Textiles

One area concerning the increasing number and types of high skilled occupation is Technical and Vocational Education (TVE) institutions that can provide such courses or programs to support the supply and demand trends in Malaysia. Therefore, there is an urgent requirement to increase the number of vocational programs suitable to the number and types of occupation required by industries, businesses, and public sectors. Not only that, Malaysian TVE institutions should have the capacity to provide high quality teachers/instructors/lecturers who can teach young generations to become strongly competitive and competently and highly skilled employees.

The implementation of Technical and Vocational Education and Training in Malaysia is unique and complex compared to other TVET countries because it involves several ministries such as Ministry of Higher Education, Ministry of Education, Ministry of Human Resources, Ministry of Youth and Sports, and Ministry of Entrepreneurship and Cooperative Development (Board of Engineers, Malaysia Institution of Engineers, & Malaysia Federation of Engineering Institution of Islamic Countries, 2003). In 2013, the Ministry of Education and Ministry of Higher Education merged into one ministry namely Ministry of

Education. The merging is carried out to integrate and enhance standards and procedures between schools and higher learning institutions. Due to the diversity of information among TVE ministries in Malaysia, this paper mainly focuses on what the Ministry of Education, supported by other ministries that have stakes in TVE has practiced to enhance the quality of TVE teaching programs at public Malaysian TVE institutions.

2.2 Existing learning models of profession education for teacher in Indonesia

Ministry of National Education (2007: 42-49) regulate the model of profession education for teacher that covers: hybrid model, integrated model, self-face model, face-to-face model, and distance learning model.

1) Hybrid model

Hybrid model is a learning model that combines face-to-face learning model and on-line learning model. Lecture material provided directly (face to face) and on-line. The variety of materials provided include: (1) printed teaching materials, (b) audio-visual teaching materials, (3) computer-based teaching materials (CAL), and (4) network-based teaching materials (web-based). This hybrid model allows students to interact and conduct learning activities with other faculty and fellow students using a variety of ways, namely: (1) face-to-face residential, (2) the interaction or on-line tutorials (synchronous and asynchronous), and (3) face advances at the time of itinerant tutor.

Face-to-face learning activities undertaken during residential, while the distance learning activities carried out independently at each site were made using printed materials, non-print, and network-based. In the independent study, students are required to have their own initiative in learning teaching materials, tasks, strengthening skills, and applying their learning experience in the field or job. During self-learning, students are given online tutorial services and tutor visits. Independent learning also allows students to manage the time and learn effectively. Self-learning can be done effectively only if the student has a discipline, initiative, and a strong motivation to learn. Self-learning can be done by individuals or groups.

2) Integrated model

Integrated model of teacher education aims at awarding diplomas S1, and professional education (Field Experience Program) that lead to the awarding certificates of educators to meet the needs in specific areas. This integrated teacher education program is basically bringing academic education S1 and the professional education of teachers. The main authority on vocational teacher is a teacher in productive subjects (subjects containing competency skills demanded by the relevance of the concept of the industrial world) with additional authority as a teacher at one of the subjects that is relevant (subjects which serves to prepare the basic skills that have power transfer to subject expertise).

3) Self-face model

Basically, face-to-face model defines as a learning model that applies a combination of face-to-face patterns between students and lecturers. It uses modules or other learning resources prepared by the

lecturer. Face to face is done when there are school holidays or on Saturdays and Sundays, while self-learning module is used when there is no school holiday.

Self-learning modules can be implemented using the tutorial, based on the agreement between the faculty and students. Tutorials can be held close to the residence of students, for example, or in the capital of the district/sub-district. This tutorial can be done by professors who administer courses or assistant. The number of meetings depends upon the agreement tutorials faculty and students.

4) Face to face models

Students who follow this model already collected scientific papers, scientific awards, and certificates of training / refresher courses and so on. All collected documents will be assessed by the College organizers through special assessment team. The results of this assessment will be a reduction of accrued credits taken by students to obtain a diploma S1 or D IV. This model of learning patterns is face to face. Learning with face-to-face teaching and learning is conducted through direct meetings between faculty and students on campus. In this regard, students have option to choose either full-time or part-time study.

5) Distance learning model

Distance Learning is a learning system that carried no direct line of sight between faculty and students. In general, teachers do not know students. In distance learning, the students are required to learn independently. Therefore, students have initiative in studying learning materials, tasks, strengthening skills, and apply their learning experience at school. Self-learning can be done individually or in groups using printed materials (modules) or non printed as a learning resource. In addition to self-study, the student must follow the tutorial, practice / practicum, and Stabilization Capabilities Professionals.

Similar to face-to-face model, students who follow this model already have or collect: scientific papers, scientific awards, certificates of training / refresher courses and so on. Those acheivements will be assessed by the College organizers through special assessment team. The students can benefit from distance learning model as the results of this assessment will be a reduction in the burden of accrued credits taken by students to obtain a diploma S1 or D IV.

2.3 Blended learning and distance learning

Kyong-Jee Kim, Curtis J. Bonk, and the Ya-Ting Teng (2009) conducted a study on the implementation of blended learning in five countries. The results showed that:

> *"Blended learning will become a popular delivery method in the future of workplace learning not only in Western countries but also in Asian countries. Still, the respondents indicated that there were several barriers to blended learning; one of the most noticeable issues was their lack of understanding of blended learning. There is a pressing need, therefore, to provide practitioners with guidance on how to implement blended learning in their organizations".*

The study was conducted in China, South Korea, Taiwan, the United States and Britain. Based on these results and the progress of technology and information nowadays, Indonesia sets internet access widely, which can support blended learning models. Blended learning is conducted through the Internet as a means of delivery of materials, evaluation, and discussion. The material varied from text, video, and animation.

Information and Communication Technology (ICT) can help in learning such as: presenting information, completing routine tasks quickly and automatically, accessing and handling information, modeling and control, interactivity, and extending school to the student's home (Muijs and Reynolds, 2008: 346-351). Noe (2008:303-304) addresses some of the methods used in the training using information and communication technology are: computer based training, CD-ROM, internet, intranet, e-learning, distance learning, intelligent tutoring, simulations and virtual reality. Among all these the best use of technology in the learning outcomes, learning environment, transfer of training, cost, and effectiveness are simulations and virtual reality. Virtual reality and intelligent tutoring systems are best suited for teaching complex processes related vocational education, namely: the operation of machine tools, industrial machinery and equipment.

Computer-assisted learning has advantages than conventional learning. The advantage of learning by using the computer are: learning with learner's own speed, interactive learning, content consistency, delivery of materials consistency, accessible anywhere, immediate feedback, integrated guide system, exciting the senses, ability to test and determine the completeness , and to maintain privacy (Noe, 2008: 272-274).

Batista, et al (2009) conducted a case study of the use of CAL-CBT (Computer-Aided-Learning Computer-Based Training) with virtual learning in the training of CNC lathes. In the case study noted that the training using machines that may not actually be implemented in the centers of learning (Learning Centers) is because of the high cost of the machine, in addition to the high ratio gap between students and the engine. The use of CAL-CBT can help implement a practical training exercise machine use. Based on these results, it turns out vocational skills can be taught using computer-based learning in virtual environments.

The work conducted by Johnson, et al (2004) on the use of distance learning via the internet showed that:

> *It may be useful for benchmarking purposes to know that community colleges teach an average of 36 credit and 67 noncredit CTE courses via the Internet. However, the important finding is the large proportion of the CTE courses taught via distance learning being delivered using the Internet. The Internet courses represent nearly three-fourths of all of their distance credit courses and nearly half of their noncredit courses. Given that the feasibility of using the Internet is a fairly recent phenomenon, these data show that the community colleges have made significant progress in developing Internet based courses in a short amount of time. These data also imply that other forms of distance learning delivery (e.g., correspondence courses, interactive television) are being replaced by Internet-based courses.*

Based on the results of these studies indicate that the implementation of learning can be done via the internet. Learning through the internet (distance learning) in the future will replace the other electronic media content delivery.

3 Research Method

3.1 Research Method

This study used qualitative research methods.

3.2 Participants

Participants in this study were: administrator/management of professional teacher education in Yogyakarta State University, the manager of e-Learning at two P4TK in Malang and Bandung districts, and 62 students of integrated professional teacher education of Faculty of Engineering YSU.

3.3 Data collections and instruments

Methods of data collection using: documentation of laws and government regulations, web surveys, interviews, and observations. Laws and government regulations are used as a source of data, especially related to teacher professional education programs, which include: PPG implementation guidelines, regulations of the minister of education, and the law.

1. The Laws and Regulations document are:
   a) Law Number 20 Year 2003 on National Education System
   b) Guidelines for the determination of the participants of in service teacher certification 2013
   c) Law No. 14 of 2005 on Teachers and Lecturers
   d) Minister of National Education Regulation No. 18 Year 2007 on Certification for Teachers
   e) Government Regulation No. 74 Year 2008 on Teachers
   f) Government Regulation No. 19 of 2005 on National Education Standards
   g) Government Regulation No. 32 Year 2013 on Amendment to Regulation No. 19 Year 2005 on National Education Standards
   h) Minister of National Education Regulation No. 16 Year 2007 on Qualifications and Competency Standards of Teachers
   i) Regulation of the Minister of Education and Culture No. 5 of 2012 on Certification For Teachers
   j) Regulation of the Minister of National Education No. 8 of 2009 on Pre-service Teacher Professional Education Program
   k) Regulation of the Minister of Education and Culture No. 87 of 2013 on Pre-service Teacher Education Profession.
   l) Indonesian Government Regulation No. 17 of 2010 Concerning the Management and Operation of Education

m) Minister of National Education Regulation No. 30 Year 2009 on Implementation Studies Program at the College of Foreign Domicile

n) Minister of National Education Regulation No. 20 Year 2011 on Implementation Studies Program at the College of Foreign Domicile

o) Regulation of the Minister of National Education No. 107/U/2001 on the Implementation of distance education in higher education

p) Regulation of the Minister of National Education No. 107/U/2001 on the Implementation of distance education in higher education.

2. The Guideline documents are:

a) Research Network Series: Teachers' Views on Teacher Quality Improvement, by the Center for Education Policy Research and Innovation, Research and Development of Ministry of Education, 2007

b) Policy Research Series: Teacher Competency Standards Compliance of National Education (SNP), by the Center for Education Policy Research and Innovation, Research and Development of Ministry of Education, 2007

c) Guidelines for Certification of Teacher in-service in 2011)

1) Book 1. Participants Determination Guidance Teacher Certification in 2011
2) Book 2. Technical Guidelines for Certification
3) Book 3. Guidelines for Developing Portfolio
4) Book 3 supplements. Portfolio Preparation Guidelines for teacher appointed as supervisor
5) Book 4. Implementation guidelines Teacher Education and Professional Training (PLPG)

d) Guidelines for Certification of Teacher in-service in 2012:

1) Book 1. Guidelines for Determination of Participants
2) Book 2. Technical Guidelines for Certification of Teacher
3) Book 3. Guidelines for Developing Portfolio
4) Book 3 supplements. Portfolio Preparation Guidelines for supervisors
5) Book 4. Implementation guidelines Teacher Education and Professional Training (PLPG)

e) Guidelines for Certification of Teacher in-service in 2013:

1) Book 1. Guidelines for Determination of Participants
2) Book 2. Technical Guidelines for Certification of Teacher
3) Book 3. Guidelines for Developing Portfolio
4) Book4. Implementation guidelines Teacher Education and Professional Training (PLPG)

5) Book 5. Competency Test Guidelines

f) Implementation Handbook Pioneering Collaborative Vocational High School Professional Teacher Education Program Productive.

3. Documentations data from web (portal data) conducted to obtain data:

a) LMS eLearning educational institutions of higher education throughout the country of Indonesia, namely:

http://elearning-ft.unp.ac.id/
http://sipoel.unimed.ac.id/
http://ft.unj.ac.id/elearning/
http://elearning.unm.ac.id/
http://lms.unm.ac.id/
http://elena.unnes.ac.id/
http://elearning.unesa.ac.id/
http://e-learning.um.ac.id/
http://besmart.uny.ac.id/
http://lms.upi.edu/
http://elearning.unima.ac.id/
http://undiksha.ac.id/moodle/
http://elearning.uns.ac.id/ and http://www.semar.fkip.uns.ac.id/
http://student.ut.ac.id/
http://etraining.tedcbandung.com/
http://elearning.vedcmalang.or.id

b) Web of Directorate of Vocational High School (http://www.ditpsmk.net/)

c) Web of Indonesia Open University (http://www.ut.ac.id/en/)

d) Interviews (via email) to the managers or employees who understand the eLearning implementation in :

1) Vocational Education Development Centre,Malang)
2) Technical Education Development Centre,Bandung)
3) Malang State University
4) Yogyakarta State University.

e) Open questionnaire was conducted to determine the availability of telecommunications network / internet in the 3 T (frontier, outer, left behind). Respondents were PPGT UNY students who reside in :

1) Aceh
2) Nusa Tenggara Timur (West Nusa Tenggara)
3) Papua.

3.4 Data analysis

The research data in the form of qualitative data were analyzed using qualitative descriptive analysis. These data were collected, reduced, displayed, and then summed. According to Miles and Huberman (1994: 12) qualitative data analysis is done continuously until completion, so the data is saturated.

As Dey (1993: 32) defines, qualitative data analysis is the process of spinning, the core of qualitative analysis lies in the relationship process of describing phenomena, classifying, and see what interconnect concepts.

Research questions and research issues addressed through qualitative data analysis by Miles and Huberman. Research questions posed used as the basis for grouping the data obtained, then reduced and described.

Once the data is described, it is followed by comparing the components of the profesional education program (four programs that now exist in Indonesia and Indonesia and Malaysia). The components is obtained by performing component analysis, which aims to find differences or contrasts (Spradley, 2007: 247). Domain in this study is a professional education program for vocational teachers. Taxonomy of the PPG program is developed based on the components: the participants, the RPE (Recognition of prior experience), RPL (Recognition of prior learning), matriculation, diploma minimum, duration, load studies on curriculum, competency testing, and sources of financing. Comparation of the two country is:

1) The number of vocational high school
2) The number of Polytechnics
3) The number of Teacher Training (College of Education) for vocational teacher
4) Group of Competency
5) Full time study program for teacher training for vocational teacher
6) The number of Study program for teacher training for vocational teacher
7) The availability of internet connection in university/ college of education
8) Support government regulations/ laws for the for the implementation of part time study program
9) The availability of the Internet on society
10) Authorized agency to implement accreditation
11) Educational institutions can be invited to cooperation.

4 Result and Discussion

4.1 Vocational education in Indonesia

Vocational education in Indonesia consists of two levels, namely: vocational high school and vocational higher education. At the high school level, it is named as vocational high schools (VHS), while in higher education it is called polytechnics or colleges. VHS established under the Law of National Education System Article 18, paragraph 3, namely: Secondary education form is: general high school (SMA), Madrasah Aliyah (MA), vocational high schools, and vocational Madrasah Aliyah (MAK), or other equal forms. Polytechnics are established by Law of National Education article 20, paragraph 3: a university could organize a program of academic, professional, and/or vocational.

a. Vocational High School (VHS)

There are 11.707 schools of VHS in Indonesia (http://datapokok.ditpsmk.net/) that spread across 33 provinces. VHS consists of public and private vocational schools. Public Schools accounted 3.026 schools and private are 8.681. The province in Indonesia that owns the highest VHS is West Java, with the number of schools are as 2.217. The least number of VHS is West Papua province, with the total of 44 schools. The detail number of VHS in Indonesia can be seen in Table 2.

Table 2: **Number of VHS in Indonesia**

NO	NAMA PROPINSI (Name of the province)	Public	Private	Total
1	*PROPINSI D.K.I. JAKARTA* Jakarta Special Territory	62	532	594
2	*PROPINSI JAWA BARAT* West Java	250	1967	2217
3	*PROPINSI JAWA TENGAH* Central Java	219	1209	1428
4	*PROPINSI D.I. YOGYAKARTA* Yogyakarta	50	168	218
5	*PROPINSI JAWA TIMUR* East Java	286	1371	1657
6	*PROPINSI ACEH* Aceh	110	51	161
7	*PROPINSI SUMATERA UTARA* North Sumatra	233	666	899
8	*PROPINSI SUMATERA BARAT* West Sumatra	98	89	187
9	*PROPINSI RIAU*	88	143	231

NO	NAMA PROPINSI (Name of the province)	Public	Private	Total
	Riau			
10	*PROPINSI JAMBI* Jambi	77	67	144
11	*PROPINSI SUMATERA SELATAN* South Sumatra	87	150	237
12	*PROPINSI LAMPUNG* Lampung	84	300	384
13	*PROPINSI KALIMANTAN BARAT* West Kalimantan	84	84	168
14	*PROPINSI KALIMANTAN TENGAH* Central Kalimantan	78	40	118
15	*PROPINSI KALIMANTAN SELATAN* South Kalimantan	56	53	109
16	*PROPINSI KALIMANTAN TIMUR* East Kalimantan	94	142	236
17	*PROPINSI SULAWESI UTARA* North Sulawesi	69	89	158
18	*PROPINSI SULAWESI TENGAH* Central Sulawesi	79	71	150
19	*PROPINSI SULAWESI SELATAN* South Sulawesi	141	261	402
20	*PROPINSI SULAWESI TENGGARA* South East Sulawesi	80	53	133
21	*PROPINSI MALUKU* Maluku	59	33	92
22	*PROPINSI BALI* Bali	46	120	166
23	*PROPINSI NUSA TENGGARA BARAT* West Nusa Tenggara	88	149	237
24	*PROPINSI NUSA TENGGARA TIMUR* East Nusa Tenggara	98	82	180
25	*PROPINSI PAPUA* Papua	65	36	101
26	*PROPINSI BENGKULU* Bengkulu	54	27	81
27	*PROPINSI BANTEN* Banten	77	513	590

NO	NAMA PROPINSI (Name of the province)	Public	Private	Total
28	*PROPINSI BANGKA BELITUNG* Bangka Belitung	29	21	50
29	*PROPINSI GORONTALO* Gorontalo	34	14	48
30	*PROPINSI MALUKU UTARA* North Maluku	56	45	101
31	*PROPINSI KEPULAUAN RIAU* Riau Archipelago	27	55	82
32	*PROPINSI PAPUA BARAT* West Papua	24	20	44
33	*PROPINSI SULAWESI BARAT* West Sulawesi	44	60	104
	TOTAL	3026	8681	11707

Based on the Decree of Directorate General of Primary and Secondary Education No. 251/C/kep/mn/2008 about Spectrum's expertise for VHS, the vocational school in developing the curriculum must follow the letter of the decisions that have been established. Spectrum of expertise for VHS consists of six subject areas of expertise, which includes 40 courses and 121 competency skills. Table spectrum of expertise for VHS can be seen in Table 3.

Table 3: **The expertise spectrum for VHS in Indonesia**

NO.	BIDANG STUDI KEAHLIAN (Expertise study field)	PROGRAM STUDI KEAHLIAN (expertise study program)	KOMPETENSI KEAHLIAN (competency of skills)	NOMOR KODE (code number)
1.	TEKNOLOGI DAN REKAYASA (Technology and Engineering)	1.1 Teknik Bangunan (Building technology)	1.1.1 Teknik Konstruksi Baja (Steel Construction technology)	001
			1.1.2 Teknik Konstruksi Kayu (Wood Construction technology)	002
			1.1.3 Teknik Konstruksi Batu dan Beton (Stone and Concrete Construction technology)	003
			1.1.4 Teknik Gambar Bangunan (Architecture)	004
			1.1.5 Teknik Furnitur (Furniture)	005
		1.2 Teknik Plumbing dan Sanitasi (Plumbing and Sanitation)	1.2.1 Teknik Plumbing dan Sanitasi (Plumbing and Sanitation)	006
		1.3 Teknik Survei dan Pemetaan (Survey and Mapping)	1.3.1 Teknik Survei dan Pemetaan (Survey and Mapping)	007
		1.4 Teknik Ketenagalistrikan(Electrical Power)	1.4.1 Teknik Pembangkit Tenaga Listrik (Power Plant)	008

			1.4.2 Teknik Distribusi Tenaga Listrik (Distribution of Electric Power)	009
			1.4.3 Teknik Transmisi Tenaga Listrik (Electrical Power Transmission)	010
			1.4.4 Teknik Instalasi Tenaga Listrik (Power Installation)	011
			1.4.5 Teknik Otomasi Industri (Industrial Automation)	012
		1.5 Teknik Pendinginan dan Tata Udara (Air Conditioning)	1.5.1 Teknik Pendinginan dan Tata Udara (Refrigeration and Air Conditioning)	013
		1.6 Teknik Mesin (Mechanical)	1.6.1 Teknik Pemesinan (Machinary)	014
			1.6.2 Teknik Pengelasan (Welding)	015
			1.6.3 Teknik Fabrikasi Logam (Metal Fabrication)	016
			1.6.4 Teknik Pengecoran Logam (Metal Foundry)	017
			1.6.5 Teknik Gambar Mesin (Drawing Mechanics)	018
			1.6.6 Teknik Pemeliharaan Mekanik Industri (Maintenance of industrial mechanics)	019
		1.7 Teknik Otomotif (Automotive)	1.7.1 Teknik Kendaraan Ringan (Light Vehicle)	020
			1.7.2 Teknik Sepeda Motor (Motor Bike)	021
			1.7.3 Teknik Perbaikan Bodi Otomotif (Automotive body repair)	022
			1.7.4 Teknik Alat Berat (Heavy equipment)	023
			1.7.5 Teknik Ototronik	024
		1.8 Teknologi Pesawat Udara (Airplane)	1.8.1 Air Frame and Power Plant	025
			1.8.2 Pemesinan Pesawat Udara (Aircraft Engine)	026
			1.8.3 Konstruksi Badan Pesawat Udara (Construction of aircraft body)	027
			1.8.4 Konstruksi Rangka Pesawat Udara (Frame construction of Aircraft)	028
			1.8.5 Kelistrikan Pesawat Udara (Electricity of Aircraft)	029
			1.8.6 Elektronika Pesawat Udara 1.8.7 (Electronics of aircraft)	030
			1.8.8 Pemeliharaan dan Perbaikan Instrumen Elektronika Pesawat Udara (*Avionic Electronic Instrumentation Maintenance and Repair*)	031
		1.9 Teknik Perkapalan (Ship Technology)	1.9.1 Teknik Konstruksi Kapal Baja (Steel Ship Construction)	032
			1.9.2 Teknik Konstruksi Kapal Kayu (Technology of wood ship construction)	033

			1.9.3 Teknik Konstruksi Kapal Fibreglass (Technology of Fiberglass Ship Construction)	034
			1.9.4 Teknik Instalasi Pemesinan Kapal (Ship engine installation)	035
			1.9.5 Teknik Pengelasan Kapal (Welding of Ship)	036
			1.9.6 Kelistrikan Kapal (Electrical of Ship)	037
			1.9.7 Teknik Gambar Rancang Bangun Kapal (Ship Design)	038
			1.9.8 Interior Kapal (Ship Interior)	039
		1.10 Teknologi Tekstil (Technology of Textile)	1.10.1 Teknik Pemintalan Serat Buatan (Artificial Fiber Spinning Technique)	040
			1.10.2 Teknik Pembuatan Benang (Yarn Making Techniques)	041
			1.10.3 Teknik Pembuatan Kain (Cloth Making Techniques)	042
			1.10.4 Teknik Penyempurnaan Tekstil (Textile finishing techniques)	043
			1.10.5 Garmen (Garment)	044
		1.11 Teknik Grafika(Graphic techniques)	1.11.1 Persiapan Grafika (Graphics preparation)	045
			1.11.2 Produksi Grafika (Graphics Manufacturing)	046
		1.12 Geologi Pertambangan (Mining Geology)	1.12.1 Geologi Pertambangan (Mining Geology)	047
		1.13 Instrumentasi Industri (Industrial Instrumentation)	1.13.1 Teknik Instrumentasi Gelas(Glass Instrumentation Engineering)	048
			1.13.2 Teknik Instrumentasi Logam (Metal Instrumentation Engineering)	049
			1.13.3 Kontrol Proses (Process controlling)	050
			1.13.4 Kontrol Mekanik (Mechanical Controlling)	051
		1.14 Teknik Kimia (Chemistry)	1.14.1 Kimia Analisis (chemical analysis)	052
			1.14.2 Kimia Industri(chemical industry)	053
		1.15 Pelayaran (sailing)	1.15.1 Nautika Kapal Penangkap Ikan (Nautical Fishing Vessels)	054
			1.15.2 Teknika Kapal Penangkap Ikan (Techniques Fishing Vessels)	055
			1.15.3 Nautika Kapal Niaga (Nautical Commerce Ship)	056
			1.15.4 Teknika Kapal Niaga (Commercial Vessel Engineering)	057
		1.16 Teknik Industri (Industrial technology)	1.16.1 Teknik dan Manajemen Produksi (Production Engineering and Management)	058

			1.16.2 Teknik dan Manajemen Pergudangan (Engineering and Management of Warehousing)	059
			1.16.3 Teknik dan Manajemen Transportasi (Transportation Engineering and Management)	060
		1.17 Teknik Perminyakan (Petroleum)	1.17.1 Teknik Produksi Perminyakan (Production of Petroleum Engineering)	061
			1.17.2 Teknik Pemboran Minyak (Petrolium Drilling)	062
			1.17.3 Teknik Pengolahan Minyak, Gas dan Petro Kimia (Processing Techniques of Oil, Gas and Petro Chemical)	063
		1.18 Teknik Elektronika (Electronics)	1.18.1 Teknik Audio -Video (Audio Video)	064
			1.18.2 Teknik Elektronika Industri (Industrial Electronics)	065
			1.18.3 Teknik Mekatronika (Mechatronics)	066
2.	TEKNOLOGI INFORMASI DAN KOMUNIKASI (Information and Communication Technology)	2.1 Teknik Telekomunikasi (Telecomunication)	2.1.1 Teknik Transmisi Telekomunikasi (Transmision of Telecomunication)	067
			2.1.2 Teknik Suitsing (Switching)	068
			2.1.3 Teknik Jaringan Akses (Network acces)	069
		2.2 Teknik Komputer dan Informatika (Information dan Communication Technology)	2.2.1 Rekayasa Perangkat Lunak (Software Design)	070
			2.2.2 Teknik Komputer dan Jaringan (Computer and Network)	071
			2.2.3 Multi Media (Multi media)	072
			2.2.4 Animasi (Animation)	073
		2.3 Teknik Broadcasting (Broadcasting)	2.3.1 Teknik Produksi dan Penyiaran Program Pertelevisian (Production and Broadcasting television program)	074
			2.3.2 Teknik Produksi dan Penyiaran Program Radio (Production and Broadcasting Radio Program)	075
3.	KESEHATAN (Health)	3.1 Kesehatan (Health)	3.1.1 Perawatan Kesehatan (Health care)	076
			3.1.2 Perawatan Gigi (Dental Care)	077
			3.1.3 Analisis Kesehatan (Analysis of wellnes)	078
			3.1.4 Farmasi (pharmacy)	079
			3.1.5 Farmasi Industri (Industrial pharmacy)	080
		3.2 Perawatan Sosial (Social Services)	3.2.1 Perawatan Sosial (Social Care)	081
4.	SENI, KERAJINAN DAN PARIWISATA (Culture, Craft and	4.1 Seni Rupa (Painting)	4.1.1 Seni Lukis (drawing art)	082
			4.1.2 Seni Patung (Statue art)	083

	Tourism)			
			4.1.3 Desain Komunikasi Visual (Visual Communication Design)	084
			4.1.4 Desain Produk Interior dan Landscaping (Interior Product Design and Landscaping)	085
		4.2 Desain dan Produksi Kria (Design and Production of Craft)	4.2.1 Desain dan Produksi Kria Tekstil (Design and Production of Textile Crafts)	086
			4.2.2 Desain dan Produksi Kria Kulit (Design and Production of leather Crafts)	087
			4.2.3 Desain dan Produksi Kria Keramik (Design and Production of ceramics Crafts)	088
			4.2.4 Desain dan Produksi Kria Logam (Design and Production of Metal Crafts)	089
			4.2.5 Desain dan Produksi Kria Kayu (Design and Production of Wood Crafts)	090
		4.3 Seni Pertunjukan(Performing Arts)	4.3.1 Seni Musik Klasik (Classical Music)	091
			4.3.2 Seni Musik Non Klasik (Non-classical Music)	092
			4.3.3 Seni Tari (Dance)	093
			4.3.4 Seni Karawitan (Karawitan Art)	094
			4.3.5 Seni Pedalangan (Pedalangan Art)	095
			4.3.6 Seni Teater (Theatre)	096
		4.4 Pariwisata (Tourism)	4.4.1 Usaha Perjalanan Wisata (Tourism Transportation)	097
			4.4.2 Akomodasi Perhotelan (Hotel Accomodation)	098
		4.5 Tata Boga (Cullinary)	4.5.1 Jasa Boga (Culinary)	099
			4.5.2 Patiseri	100
		4.6 Tata Kecantikan (Cosmetics)	4.6.1 Kecantikan Kulit (Skin Beauty)	101
			4.6.2 Kecantikan Rambut (Hair Beauty)	102
		4.7 Tata Busana (Fashion)	4.7.1 Busana Butik (Boutique Fashion)	103
5.	AGRIBISNIS DAN AGROTEKNOLOGI (Agrobussines and agrotechnology)	5.1 Agribisnis Produksi Tanaman (Agribusiness of Crop Production)	5.1.1 Agribisnis Tanaman Pangan dan Holtikultura (Agribusiness Food Crops and Horticulture)	104
			5.1.2 Agribisnis Tanaman Perkebunan (Agribusiness Plantation Crops)	105
			5.1.3 Agribisnis Pembibitan dan Kultur Jaringan Tanaman (Agribusiness Crop Breeding and Tissue Culture)	106
		5.2 Agribisnis Produksi Ternak (Agribusiness of	5.2.1 Agribisnis Ternak Ruminansia (Agribusiness Ruminant)	107

		livestock production)		
			5.2.2 Agribisnis Ternak Unggas (Poultry Agribusiness)	108
			5.2.3 Agribisnis Aneka Ternak (Agribusiness Livestock Miscellaneous)	109
			5.2.4 Perawatan Kesehatan Ternak (Livestock Health Care)	110
		5.3 Agribisnis Produksi Sumberdaya Perairan	5.3.1 Agribisnis Perikanan (Fisheries Agribusiness)	111
			5.3.2 Agribisnis Rumput Laut (Seaweed Agribusiness)	112
		5.4 Mekanisasi Pertanian(mechanization of Agriculture)	5.4.1 Mekanisasi Pertanian (Agricultural mechanization)	113
		5.5 Agribisnis Hasil Pertanian (Agribusiness Agricultural Products)	5.5.1 Teknologi Pengolahan Hasil Pertanian (Agricultural Products Processing Technology)	114
			5.5.2 Pengawasan Mutu (Quality Control)	115
		5.6 Penyuluhan Pertanian(Agricultural Extension)	5.6.1 Penyuluhan Pertanian (Agricultural Extension)	116
		5.7 Kehutanan (Forestry)	5.7.1 Kehutanan (4 Tahun) (Foresty) (4 year)	117
6.	BISNIS DAN MANAJEMEN (Bussiness and Management)	6.1 Administrasi (Administration)	6.1.1 Administrasi Perkantoran (Office administration)	118
		6.2 Keuangan (finance)	6.2.1 Akuntansi (Accounting)	119
			6.2.2 Perbankan (Banking)	120
		6.3 Tata Niaga(Commerce))	6.2.3 Pemasaran (Marketing)	121

b. Polytechnics in Indonesia

A polytechnic in Indonesia considered as higher/tertier education. At this time the number of public polytechnic in Indonesia are as amount as 34 schools. The details are as shown in Table 4.

Table 4: **List of Public Polytechnics in Indonesia**

No	Polytechnics Name	Location, Province
1	Politeknik Bengkalis/**POLBENG**	Bengkalis, Riau
2	Politeknik Negeri Batam/**Poltek**	Batam, Kepuluan Riau
3	Politeknik Elektronika Negeri Surabaya/**PENS**	Surabaya, Jawa Timur
4	Politeknik Manufaktur Bandung/**POLMAN Bandung**	Bandung, Jawa Barat
5	Politeknik Negeri Ambon/**POLNAM**	Ambon, Maluku
6	Politeknik Negeri Bali/**PNB**	Denpasar, Bali
7	Politeknik Negeri Bandung/**POLBAN**	Bandung, Jawa Barat
8	Politeknik Negeri Banjarmasin/**POLIBAN**	Banjarmasin, Kalimantan Selatan
9	Politeknik Negeri Jakarta/**PNJ**	Depok, Jawa Barat
10	Politeknik Negeri Jember/**POLIJE**	Jember, Jawa Timur
11	Politeknik Negeri Kupang/**PNK**	Kupang, NTT
12	Politeknik Negeri Lampung/**POLINELA**	Bandar Lampung, Lampung
13	Politeknik Negeri Lhokseumawe/**PNL**	Lhokseumawe, Aceh
14	Politeknik Negeri Malang/**POLINEMA**	Malang, Jawa Timur
15	Politeknik Negeri Manado	Manado, Sulawesi Utara
16	Politeknik Negeri Medan/**POLMED**	Medang, Sumatera Utara
17	Politeknik Negeri Padang/**PNP**	Padang, Sumatera Barat
18	Politeknik Negeri Pontianak/**POLNEP**	Pontianak, Kalimantan Barat
19	Politeknik Negeri Samarinda/**POLNES**	Samarinda, Kalimantan Timur
20	Politeknik Negeri Semarang/**POLINES**	Semarang, Jawa Tengah
21	Politeknik Negeri Sriwijaya/**POLSRI**	Palembang, Sumatera Selatan
22	Politeknik Negeri Ujung Pandang/**PNUP**	Makassar, Sulawesi Selatan
23	Politeknik Perikanan Negeri Tual	Tual, Maluku
24	Politeknik Perkapalan Negeri Surabaya/**PPNS**	Surabaya, Jawa Timur
	Politeknik Pertanian Negeri Kupang	Kupang, NTT
25	Politeknik Pertanian Negeri Pangkajene dan	Pangkep, Sulawesi

No	Polytechnics Name	Location, Province
	Kepulauan/**POLTEK PANGKEP**	Selatan
26	Politeknik Pertanian Negeri Payakumbuh	Payakumbuh, Sumatera Barat
27	Politeknik Pertanian Negeri Samarinda/**POLTANESA**	Samarinda, Kalimantan Timur
28	Politeknik Negeri Media Kreatif Jakarta/**POLIMEDIA**	Jakarta, Indonesia
29	Politeknik Fak-Fak	Fak Fak, Papua
30	Politeknik Negeri Nusa Utara/ Polnustra	Sangir Talaud, Sulawesi Utara
31	Politeknik Balikpapan	Balikpapan, Kalimantan Timur
32	Politeknik Sampang Madura	Madura, Jawa Timur
33	Politeknik Manufaktur Bangka Belitung	Sungailiat, Bangka
34	Politeknik Marin Semarang	Semarang, Jawa Tengah

4.2 Vocational teacher training in Indonesia

Teacher training program for vocational high schools in Indonesia is organized by the 13 colleges of education. The 13 colleges are conducting 28 courses. The colleges are as follow:

1) State University of Padang
2) Yogyakarta State University
3) Indonesia Education University, Bandung
4) State University of Malang
5) State University of Surabaya
6) State University of Medan
7) State University of Manado
8) State University of Makassar
9) State University of Semarang
10) State University of Jakarta
11) State University of Surakarta “Sebelas Maret”
12) Singaraja Education University
13) State University of Gorontalo.

The undergraduate study program organized by university education above are:

1) Mechanical Education Engineering
2) Automotive Education Engineering
3) Electricity Education Engineering
4) Electricity Engineering
5) Industrial Electricity Engineering (Diploma IV)
6) Electronics Education Engineering
7) Building/ Civil Education
8) Architecture Engineering Education
9) Architecture Engineering
10) Civil Engineering
11) Mining Engineering
12) ICT Education
13) Mechatronics Education
14) Family Welfare Education
15) Cullinary Education
16) Fashion Education
17) Cosmetics and Beauty Make Up
18) Hotel Management
19) Accounting Education
20) Economics Education
21) Economics Cooperation Education
22) Business and Management Education
23) Office Administration Education
24) Music Education
25) Dance Education
26) Handmade Craft Education
27) Art Drawing Education
28) Agroindustry Technology Education

Based on data from the workforce directorate of higher education, the predictions of graduates from all of the college in 2012 were 5.697 people. All vocational teacher training colleges provide education on a regular basis (full time) with face-to-face method.

Vocational teacher education curriculum is based on the Decree of the Minister of National Education No. 232/U/2000 on Higher Education Guidelines for Curriculum and Student Learning Outcomes Assessment, and the Minister of National Education No.045/U/2002, High Education Core Curriculum. Competencies of graduates of a study program consist of: core competencies, supporting competencies, and other competencies that are specific and related to core competencies. Based on these competencies, the vocational teacher education curriculum structure includes:

1) Group of personality development courses
   Group of course materials and lessons to develop Indonesian human: faithful and devoted to God, Almighty and has noble character, good personality and independent also posseses a sense of responsibility to the community and nationality.
2) The group of science subjects and skills
   Group of course materials and lessons are intended primarily to provide a foundation of knowledge and mastery of certain skills.
3) Group work skills courses
   Group of course materials and lessons with the aim of producing skilled workmanship based on the basic knowledge and skills.
4) Subject group work behavior
   Group of course materials and lessons that has purpose to develop the attitudes and behaviors needed to work according to skill level based on the basic knowledge and skills mastered.
5) The group of social life subjects
   Group of course materials and lessons necessary to be able to understand the rules of the society in accordance with the preferred expertise in the work.

Comparison of equivalent loads in the form of semester credit units between: core competencies: supporting competencies: other competencies, in the curriculum ranged from 40-80%: 20-40%: 0-30%. Elaboration of vocational teacher education courses are:

1) General Subjects
2) Basic Science Subjects
3) Engineering Subjects
4) Vocational Subjects
5) Subject specific pedagogy.

4.3 Teacher training in Indonesia Open University Indonesia

Indonesia Open University is the 45th State University in Indonesia inaugurated on September 4, 1984, by virtue of Decree of the President of the Republic of Indonesia No. 41 of 1984 (http://www.ut.ac.id/en/). The university was established with the objectives as following:

1) to provide expansive opportunity for Indonesian citizens and foreigners, wherever their place of residence to attain higher education;
2) to provide higher education services for those who, because of their work or due to other reasons, are not able to further their studies in face-to-face prominent higher education institutions.
3) to develop academic and professional programs so far unaddressed by other universities that meet the genuine needs of national development.

Open University applies a distance and open leaning system. The term distance means that learning is not performed in face-to-face, but make use of media, whether printed media (modules) or non-printed (audio/video, computer/Internet, radio and television broadcasts). Open means there is no limitation as to age, year of graduation, period of study, registration time, and frequency of examinations. The only limitation applied is that Open university students must have graduated from High School (SMA or equivalent).

The students are expected to learn independently. This self-learning method means that a student learns on his/her own initiative. The university provides learning materials specifically designed for independent learning. Aside from using materials provided by the university, students can also take the initiative to make use of the library, take tutorials, whether face-to-face or through the Internet, use radio or television broadcasts, or uses computer-assisted learning materials and audio/video programs. When faced with difficulty in learning, students can request for information or tutorial assistance to the local Learning Program Unit of the Distance Learning Open University (UPBJJ-UT).

In many instances, independent learning is determined by the ability to learn efficiently which depends on speed reading and the capacity to grasp the materials. Open uiversity students who want to learn efficiently need to have self-discipline, initiative, and a strong motivation to learn. Students are also required to use their time effectively so that they can study regularly according to their own schedule. To learn successfully at the university, prospective students must be prepared to learn independently.

Like regular universities, Open University applies a semester credit system (scu) to determine the student's study load in each semester. In this system the study load that must be completed in one study program is measured by a semester credit unit. Each subject is given a credit load of 1-6 scu. One semester is one unit of learning period that lasts approximately 16 weeks.

In Higher Education with a face-to-face learning system, a student taking a study load of one credit must take a one-hour class every week, and one hour for practice class or studying at home so that in one

semester a student must allocate 32 hours of study period. In order to complete one subject with a credit load of 3 scu, one semester requires 96 hours of study time.

In a distance learning system, the student must also allocate the same period of study as a face-to-face student would (2 hours per week per scu). The only difference is that studying would be carried out independently (at home, in study groups, and through tutorials).

Specifically in the case of Open University, one scu is equivalent to three modules of printed teaching material. One module consists of 40-50 pages so that teaching material with a credit load of 3 scu will consist of approximately 360 – 450 pages depending on the type of subject. Based on a study conducted, an average student's ability to read and understand material is 5 -6 pages per hour so that in order to complete reading teaching material with a credit load of 3 scu, a student will need around 75 hours (360-450 pages divided by 5-6 pages). If a semester has a 16-week period, the time needed to read the teaching material with a credit load of 3 scu will be 75 hours divided by 16 weeks, or approximately 5 hours per week. As an example, if a student takes 15 scu/semester, he/she will have to allocate a study period of 15 scu divided by 3 scu times 5 hours = 25 hours per week or approximately 5 hours per day (1 week is equal to 5 days of study).

With such a learning system Open University students are expected to allocate a study time in accordance with the credits load they take or to take a credit load that fits the study time they are able to allocate, and to take into consideration their own academic ability.

In conducting education programs, Open University works together with all state universities and a number of private universities as well as with relevant government agencies in Indonesia. In every province or regency/municipality where there are state universities, Open University provides its services called the UPBJJ-UT (Distance Learning Program Unit of the Open University). The local State Universities function as the UPBJJ-UT's advisor and provides assistance in formulating learning materials, examination material, tutorials, practice classes, and examinations.

In order to provide maximum education services for students spread across the country and overseas, Open University cooperates with other institutions such as Bank BRI, Bank BTN, Bank Mandiri, Televisi Republik Indonesia (TVRI), Q-Channel, TV-Edukasi, Radio Republik Indonesia (RRI), State Broadcasting Radios, Private Commercial Radio Broadcasting Stations, Provincial and Regency/Municipality Governments, IGTKI (Association of Indonesian Kindergarten Teachers), Education Attaches in Indonesian Embassies abroad, the Indonesian National and Regional Libraries, the National Archives, PT OVIS Sendnsave, Karunika Cooperative, and PT Pos Indonesia.

Open University also works with institutions wishing to improve the quality of their human resources, whether government agencies, state-owned enterprises or private companies. They can use programs available in the Open University or request a new study program designed in accordance with their needs. Presently, Open University has been entrusted by the government to improve the quality of Elementary School teachers and teachers of Early-Age Children through a program known as Education Program for

Teachers of Elementary Education. In addition, Open University has also been entrusted with the task of improving the quality of Human Resources at, among others, ANRI, KPN, the Indonesian Army, Bank BRI, Bank BNI, PT Garuda Indonesia Airlines, PT Merpati Nusantara Airlines, the Ministry of Agriculture, the Secretariat of the Vice-President's office, Governments at the Regency/Municipality level, Islamic Boarding Schools, and a number of other institutions.

Faculty of Education and Teacher Training (FKIP) determined to be the organizers of in-service teacher education programs and staff, and professional certification programs for educators and education through a distance learning system that is world class. To realize the mission that has been set, FKIP aims to:

1) Provide access to teacher education programs for all types and forms based on the integrity of the science teacher, as well as flexibility and openness that is sustainable.
2) Conduct teacher education programs based on open and distance education system which utilizes remote quality teaching materials
3) Conduct teacher education programs based on open systems and distance education through the provision of a variety of quality learning support services for students
4) Conduct teacher education programs based on open systems and distance education through the appropriate use of technology.
5) Conduct teacher education programs based on open and distance education system which is accountable through the remote control and quality assurance mechanisms.
6) Conduct teacher education programs based on a system of higher education through open and distance management system implementation and professional leadership.
7) Produce academic products in the fields of education and teacher quality for the teachers and other education personnel.
8) Organize teacher education programs based distance learning system which is based on a network of collaborative partnerships with various parties.
9) Utilize the results of research and development in the field of teacher education and teacher education programs to organize a system based on open and distance education.
10) Disseminate the science, technology, and art through the organization of teacher education programs based distance education system.

Open University has four faculties and one postgraduate program, namely: Faculty of Economy, Faculty of Mathematics and Natural Sciences, Faculty of Education and Teacher Training, Faculty of Social and Political Sciences, and Postgraduate Program. As one of the faculties in the 45th state university, all the programs offered by the Faculty of Education and Teacher Training (FKIP) has obtained official permit from the Directorate of High Education. Currently, the FKIP has 5 departments with 12 study programs, as well as professional teacher training programs. The FKIP runs the following study programs:

Undergraduate (S1) Program

1) Indonesian Language and Literature Education
2) English Education
3) Biology Education
4) Physics Education
5) Chemistry Education
6) Mathematics Education
7) Economy Education
8) Pancasila (State Ideology) and Civics Education
9) Elementary School Teacher Education
10) Early Years Children Teacher Education
11) Certificate Program of Indonesian Language for Foreign Speakers.

Distance Learning Program Unit of the Open University (UPBJJ-UT) spread almost in all province of Indonesia. The table below is the list of UPBJJ-UT, name and addresses.

Table 5: **The list of Code, Name, and addresses of Distance Learning Program Unit of the Open University (UPBJJ-UT) in Indonesia**

No.	Code of UPBJJ	Name of UPBJJ	Addresses	Website
1.	11	Banda Aceh	Jl. Pendidikan/Bahagia, Punge Blang Cut, Kecamatan Jaya Baru, Kota Banda Aceh 23234 Telp. 0651-44749, 44750 Faks. 0651-44757 E-mail: ut-bandaaceh@ut.ac.id	http://www.aceh.ut.ac.id/
2.	12	Medan	Jl. Bromo No. 29 Medan, Kelurahan Binjai Kecamatan Medan Denai 20228 Telp. 061-7323795, 7326261 Faks. 061-7326260 E-mail: ut-medan@ut.ac.id	http://www.medan.ut.ac.id/
3.	13	Batam	Jl. Dr. Sutomo No. 3 Sekupang, Batam 29422 Telp. 0778-326189, 323478, 323469, 323470 Faks. 0778-323479 E-mail: ut-batam@ut.ac.id	http://www.ut-batam.ac.id/
4.	14	Padang	Jl. Raya By Pass Km.13 Sungai Sapih, Padang 25159 Telp. 0751-496630 Faks. 0751-496633 E-mail: ut-padang@ut.ac.id	http://www.padang.ut.ac.id/
5.	15	Pangkalpinang	Jl. Pulau Bangka, Komplek Perkantoran dan Pemukiman Terpadu, Pemerintah Prov. Kep Bangka Belitung	http://www.pangkalpinang.ut.ac.id/

No.	Code of UPBJJ	Name of UPBJJ	Addresses	Website
			Air Hitam, Pangkal Pinang Telp. 0717-424986, 437949 Faks. 0717-436140, 431315 E-mail: ut-pangkalpinang@ut.ac.id	
6.	16	Pekanbaru	Jl. Arifin Ahmad No. 111, Pekanbaru 28294 Telp. 0761-589261 Faks. 0761-589259 E-mail: ut-pekanbaru@ut.ac.id	http://www.pekanbaru.ut.ac.id/
7.	17	Jambi	Jl. Tarmizi Kadir No.60, Pakuan Baru, Jambi 36132 Telp. 0741-25753 Faks. 0741-7555572 E-mail: jambi@ut.ac.id	http://www.jambi.ut.ac.id/
8.	18	Palembang	Jl. Sultan Muhammad Mansyur, Kec. Ilir Barat I, Bukit Lama, Palembang 30139 Telp. 0711-443993, 443994 Faks. 0711-443992 E-mail: ut-palembang@ut.ac.id	http://www.palembang.ut.ac.id/
9.	19	Bengkulu	Jl. Sadang Raya, Kelurahan Lingkar Barat, Kota Bengkulu 38225 Telp. 0736-26294 Faks. 0736-346177 E-mail: ut-bengkulu@ut.ac.id	http://www.bengkulu.ut.ac.id/
10.	20	Bandar Lampung	Jl. Soekarno-Hatta No. 108B Rajabasa, Bandar Lampung 35144 Telp. 0721-704772 Faks. 0721-709026 E-mail: ut-bandarlampung@ut.ac.id	http://www.lampung.ut.ac.id/
11.	21	Jakarta	Jl. Ahmad Yani No. 43 (By pass) Kel. Utan Kayu, Kec. Matraman, Jakarta Timur Telp. 021-29613751, 85914353, 29613752, 29622059 Faks. 021-29613751 E-mail: ut-jakarta@ut.ac.id	http://www.jakarta.ut.ac.id/
12.	22	Serang	Jl. Raya Jakarta Km. 7 Pakupatan, Serang, Banten 42122 Telp. 0254-282728, 282721 Faks. 0254-282719 E-mail: ut-serang@ut.ac.id	http://www.serang.ut.ac.id/
13.	23	Bogor	Jl. Julang No.7, Tanah Sareal, Bogor 16161 Telp. 0251-8382027 Faks. 0251-8311927 E-mail: ut-bogor@ut.ac.id	http://www.bogor.ut.ac.id/
14.	24	Bandung	Jl. Panyileukan Raya No. 1 A, Soekarno-Hatta, Bandung 40614 Telp. 022-7801791, 7801792, 87820554 Faks. 022-87820556 E-mail: bandung@ut.ac.id	http://www.bandung.ut.ac.id/

No.	Code of UPBJJ	Name of UPBJJ	Addresses	Website
15.	41	Purwokerto	Jl. Kampus No. 54 Grendeng, Purwokerto 53122 Telp. 0281-624317 Faks. 0281-624318 E-mail:ut-purwokerto@ut.ac.id	http://www.purwokerto.ut.ac.id/
16.	42	Semarang	Jl. Raya Semarang-Kendal Km. 14,5, Mangkang Wetan, Semarang Telp. 024-8666044 Faks. 024-8666045 E-mail: ut-semarang@ut.ac.id	http://www.semarang.ut.ac.id/
17.	44	Surakarta	Jl. Raya Solo-Tawangmangu Km 9,5 Mojolaban, Sukoharjo 57554 Telp. 0271-822629, 822632 Faks. 0271-822632 E-mail: ut-surakarta@ut.ac.id	http://www.surakarta.ut.ac.id/
18.	45	Yogyakarta	Jl. Bantul No. 50 A, Yogyakarta 55142 Telp. 0274-411463, 411464 Faks. 0274-411464 E-mail: ut-yogyakarta@ut.ac.id	http://www.yogyakarta.ut.ac.id/
19.	71	Surabaya	Kampus C Universitas Airlangga, Jl. Mulyorejo, Surabaya 60115 Telp. 031-5961861, 5961862 Faks. 031-5961860 E-mail: ut-surabaya@ut.ac.id	http://www.surabaya.ut.ac.id/
20.	74	Malang	Jl. Mayjen, Sungkono No. 9, Malang 65145 Telp. 0341-751600 Faks. 0341-751717 E-mail: malang@ut.ac.id	http://www.malang.ut.ac.id/
21.	76	Jember	Jl. Kaliurang No. 2-A, Jember 68121 Telp. 0331-326444 Faks. 0331-336444 E-mail: jember@ut.ac.id	http://www.jember.ut.ac.id/
22.	77	Denpasar	Jl. Gurita No. 11 Sesetan, Denpasar 80223 Telp. 0361-720720 Faks. 0361-710606 E-mail: ut-denpasar@ut.ac.id	http://www.denpasar.ut.ac.id/
23.	78	Mataram	Jl. Neuningan, Sandubaya, Lombok, NTB 83236 Telp. 0370-671007 Telp./Faks. 0370-671006 E-mail: ut-mataram@ut.ac.id	http://www.mataram.ut.ac.id/
24.	79	Kupang	Jl. Pulau Indah No. 6, Oesapa Barat, Kupang 85228 Telp. 0380-8553825 Faks. 0380-8553813 E-mail: ut-kupang@ut.ac.id	http://www.kupang.ut.ac.id/

No.	Code of UPBJJ	Name of UPBJJ	Addresses	Website
25.	47	Pontianak	Jl. Karya Bakti, Pontianak 78121 Telp. 0561-736107, 730291, 760791 Faks. 0561-736107 E-mail: ut-pontianak@ut.ac.id	http://www.pontianak.ut.ac.id/
26.	48	Palangka Raya	Jl. G. Obos Km. 3,5 No. 177, Palangka Raya, Kalimantan Tengah 73112 Telp. 0536-3221084, 3306440 Faks. 0536-3221086 E-mail: ut-palangkaraya@ut.ac.id	http://www.palangkaraya.ut.ac.id/
27.	49	Banjarmasin	Jl. Sultan Adam No. 128 RT 26, Banjarmasin 70122, Telp. 0511-4315675 Faks. 0511-4315671 E-mail: banjarmasin@ut.ac.id	http://www.banjarmasin.ut.ac.id/
28.	50	Samarinda	Jl. H.A.M.M. Rifaddin, Samarinda Seberang 75131 Telp. 0541-7269108 Faks. 0541-7269109 E-mail: samarinda@ut.ac.id	http://www.samarinda.ut.ac.id/
29.	80	Makassar	Jl. Monginsidi Baru No. 7, Makassar 90142 Telp. 0411-441444 Faks. 0411-4664883 E-mail: ut-makassar@ut.ac.id	http://www.makassar.ut.ac.id/
30.	81	Majene	Jl. Sultan Hasanuddin No. 2 Majene Tlp. 0422-22224, 22229 Faks. 0422-22227 E-mail: ut-majene@ut.ac.id	http://www.majene.ut.ac.id/
31.	82	Palu	Jl. Untad I, Tondo, Palu 94118 Telp. 0451-452228 Faks. 0451-452826 E-mail: ut-palu@ut.ac.id	http://www.palu.ut.ac.id/
32.	83	Kendari	Jl. A.H. Nasution, Kelurahan Kambu Bundaran Anduonohu, Kendari 93232 Telp. 0401-3136035 Faks. 0401-3136033 E-mail: ut-kendari@ut.ac.id	http://www.kendari.ut.ac.id/
33.	84	Manado	Jl. Sam Ratulangi Raya Manado-Tomohon, Kec. Winangun (depan gereja GPDI Winangun) Manado - SULUT 95261 Telp. 0431-822292 Faks. 0431-822229 E-mail: ut-manado@ut.ac.id	http://www.manado.ut.ac.id/
34.	85	Gorontalo	Jl. Raden Saleh 27, Kel. Dulalowo Timur, Kec. Kota Tengah, Kota Gorontalo 96115 Telp. 0435-831965 Pesawat 102	http://www.gorontalo.ut.ac.id/

No.	Code of UPBJJ	Name of UPBJJ	Addresses	Website
			Faks. 0435-831964 E-mail: ut-gtalo@ut.ac.id, ut-gorontalo@ut.ac.id	
35.	86	Ambon	Jl. Woltermonginsidi Lateri, Ambon 97231 Telp. 0911-361303 Faks. 0911-361304 E-mail: ut-ambon@ut.ac.id	http://www.ambon.ut.ac.id/
36.	89	Ternate	Jl. Raya Mangga Dua, Kota Ternate, Prov. Maluku Utara 97710 Telp. 0921-3128352 Faks. 0921-3128442 E-mail: ut-ternate@ut.ac.id	http://www.ternate.ut.ac.id/
37.	87	Jayapura	Jl. SPG Teruna Bhakti Waena, Kotak pos 204 Abepura Jayapura Papua 99358 Telp. 0967-571447 Faks. 0967-571090 E-mail: ut-jayapura@ut.ac.id	http://www.jayapura.ut.ac.id/

By 2013, Open University has 27 courses of S1, 3 diploma courses, 4 master programs offered by four faculties and one graduate program. Besides the graduate program, it is also developing an international program that ASEAN Studies program in collaboration with three universities of ASEAN member country. The number of student registrations in 2012 recorded 493.333 people spread throughout Indonesia and in 22 cities in 14 countries including Saudi Arabia, South Korea, Hong Kong, Singapore, Malaysia and Taiwan. Of these 386.558 (78.4 %) is teacher training student or the teacher profession, and the remaining 106.775 (21.6 %) is students of: Faculty of Social and Politics Science, Faculty of Economics and Graduate School. In regards to age group, the Open University student is no longer dominated by the age group over 40 years as a few years ago. Students under 30 years of age is about 46 % and it shows that Open University has begun to interest young people.

4.4 Technical and vocational courses in UTHM Malaysia

The Faculty of Technical and Vocational Education (FTVE) of the Universiti Tun Hussein Onn Malaysia (UTHM), was formally known as the Faculty of Technical Education (FTek). Its renowned excellences in Teachers Training in Technical and Vocational Education and Training (TT-TVET) niche areas is traceable back to the year 1993 when we started as one of the core departments of the Polytechnics Staff Training Centre (PSTC) that produced qualified polytechnics lecturers and instructors. PSTC was upgraded and renamed as Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO) on May 1998. On May 27th. 2000, the department was restructured and renamed as the Department of Technical and Vocational Education (DTVE) under the auspices of the Faculty of Engineering Technology, KUiTTHO. On May 1st. 2004, the department was upgraded as the Faculty of Technical Education with the

dissolution of Department of Engineering Technology. The rebranding of the faculty to the present new name, is endorsed by the Ministry of Higher Education on June 23rd. 2011, to reflect its continuous and significant contributions to the rapid changes and transformation of the Technical and Vocational Education (TVET) Systems, both locally and abroad (http://fptv.uthm.edu.my/).

Technical and Vocational Education (TVE) is defined as a discipline that helps an individual to have an acquisition of technical knowledge and occupational skills associated to high skilled job placement and supports the economic growth of a country (Dennis & Hudson, 2007). Since TVE in Malaysia is operated by various ministries which have different goals and objectives, it obviously indicates that some TVE institutions in this country offer different types of courses or programs in relation to technical and vocational skills. In addition, TVE courses or programs offered in any Malaysian TVE institutions also depend on a joint effort involving the government, industries, and academia (Haas, 1999).

Such a scenario applies at University of Tun Hussein Onn Malaysia (UTHM) where TVE courses or programs offered may vary from other public or private universities in Malaysia. Although there are eight faculties in UTHM which can be related to TVE programs, the most prominent and outstanding TVE programs provider at this university is the Faculty of Technical and Vocational Education (FTVE). FTVE UTHM has well-experienced lecturers in teaching vocational programs and some of them have been awarded by certified body as Vocational Training Officers and Vocational Training Managers.

Technical and vocational education programs in UTHM are divided into two clusters: academic program and lifelong learning program. Academic program is provided for those who have good academic qualifications to further their studies either at diploma, undergraduate, or postgraduate levels. As far as the Faculty of Technical and Vocational Education is concerned, there are specialized programs for Technical and Vocational Education which as shown in Table 6.

Table 6: **Programs offered by Faculty of Technical and Vocational Education, University of Tun Hussein Onn Malaysia (Faculty of Technical and Vocational Education, 2013)**

Programs offered by Faculty of Technical and Vocational Education, UTHM	**Ph. D. Programs**
	1. Doctor of Philosophy in Technical and Vocational Education 2. Doctor of Philosophy in Education
	Master's Programs
	1. Master in Technical and Vocational Education 2. Master in Technical Education (Civil Engineering) 3. Master in Technical Education (Electrical Engineering) 4. Master in Technical Education (Mechanical Engineering) 5. Master in Technical Education (Instructional Design and Technology)
	First Degree Programs
	1. Bachelor of Technical and Vocational Education 2. Bachelor of Vocational Education (Electrical & Electronics) 3. Bachelor of Vocational Education (Catering) 4. Bachelor of Vocational Education (Building and Construction) 5. Bachelor of Vocational Education (General and Machining) 6. Bachelor of Vocational Education (Welding and Metal Fabrication) 7. Bachelor of Vocational Education (Air Conditioning and Refrigeration) 8. Bachelor of Vocational Education (Multimedia Creative) 9. Bachelor of Vocational Education (Education Management) 10. Bachelor of Vocational Education (Primary School)
	Diploma Program
	1. Postgraduate Diploma in Education

In contrast, lifelong learning program is commonly enrolled by individuals who are underachievers but willing to improve their life skills through short-term and long-term courses or trainings. Yet, there are some professional officers from various local and international agencies who have requested to participate for self-improvement. Most lifelong learning programs are promoted and organized by the Continuing Education Center UTHM and the faculties responsible for content and skills delivery. Morse Code Radio Operator, Maintenance Management System, Boilerman and Non-Destructive Testing are some of popular TVE lifelong learning programs organized by UTHM.

Both teacher training colleges and universities offer pre-service training programs. The universities offer two types of programs: a one- year postgraduate diploma in education, and a four year integrated bachelor's degree. Similarly, teacher training colleges offer a six-semester (or three-year) diploma in teaching program, and a one-year (two semesters) postgraduate diploma in teaching for university graduates who wish to enter the field of education (UNESCO, 2011).

The Ministry of Higher Education requires a minimum of 120 credits for all Bachelor Degree program. Out of the 120 credits, 15-20 % is University Compulsory Subjects, 50 – 60 % is Core subjects and 25 – 30 % is Specialization course. For this example, Bachelor of Vocational Education (Catering) with honours requires 135 credits (16 % University Compulsory Subjects, 55 % Vocational Subjects, 29 % Specialization subjects). The curriculum will include mastery body of knowledge, practical skills, social skills and responsibility, ethics and professionalism, critical thinking and problem solving, communications skills and teamwork, information management and lifelong learning and entrepreneurship and management. Table 1 shows the curriculum structure for the Bachelor of Vocational Education (Catering) with honours program (Wan Azlinda, 2010).

4.5 In-service and Pre-service training for vocational teacher

Generally, in-service training is something that has been practiced by public TVE institutions in Malaysia. Such training is considered as an incentive provided by the Malaysian government to vocational teachers who have loyally served the government. The training can be either optional or compulsory for the teachers. In-service training is also known as professional development or staff development and it is up to an institution on which terminology to use (Cooper, 2008). Despite teaching qualifications that they have obtained, there are some teachers who enjoy attending trainings as they give the teachers the opportunity to develop and improve their teaching competencies in their respective fields (Essel, Badu, Owusu-Boateng, & Saah, 2009). Practically, potential vocational teachers in Malaysia will be sent for trainings to either local or foreign countries depending on the available budget as well as the candidates fulfill the terms and condition decided by the government (Mokshein, Ahmad, & Vongalis-Macrow, 2009). A series of short in-service courses, seminars, workshops, internships, and workplace trainings are some of the in-service programs in Malaysia that are commonly implemented at school, district, state, national, and international levels (Mokshein, Ahmad, & Vongalis-Macrow, 2009).

The Teacher Education Division (TED) under the jurisdiction of Ministry of Education Malaysia is largely responsible for the preparation of in-service teachers in Malaysia. In addition, TED is also responsible for conducting both the pre-service and in-service teacher education programs in this country. In order to provide a better service and fulfill its purpose as a training provider, a teacher training college was upgraded to an 'institute' status in 2006. The institute is currently known as the Institute of Teacher Education (ITE). Furthermore, local vocational teachers can apply for any in-service programs organized by Malaysian public and private sectors and international agencies such as Institute of Aminuddin Baki (IAB), National Institute of Valuation, Center for Instructor and Advanced Skill Training (CIAST), SEAMEO-VOCTECH, Colombo Plan Staff College for Technical Education (CPSC) and Japan International Cooperation Agency (JICA).

In Malaysia, pre-service training involves student teachers at local education institutions or public universities. The Teacher Education Division (TED), Ministry of Education Malaysia is the party responsible to conduct, coordinate and supervise the pre-service trainings for the teacher trainees who will

work under this ministry later. The minimum qualification to enroll in a teacher-training program in Malaysia is a pass in Malaysian Certificate of Education Examination or Sijil Pelajaran Malaysia. However, to ensure that only candidates who meet the standards, have a towering personality, and have the interest and inclination are selected to become teachers, the Ministry of Education has included some additional terms as admission requirements in order to improve teacher selection.

Likewise, there is a wide range of programs being offered for pre-service teacher either at ITE or public universities at undergraduate or postgraduate levels. The Malaysian Qualifications Agency (MQA) is the body that assures the quality of the programs offered at teacher training institutions (Malaysian Qualification Agency, 2011). All practicing teachers including pre-service and in-service teachers at schools run by the Ministry of Education are trained and certified with at least a diploma (normally a three-year program) with a compulsory of at least a postgraduate certificate in teaching (normally a one-year program). In 2007, Ministry of Education raised the minimum pre-service training qualification from a diploma to a bachelor degree for primary teachers. This is in accordance to the existing practice applied on secondary school teachers (Malaysia Government, 2012).

Currently, many teachers are either first or master degree holders who teach subjects relevant to their field. This is in line with the policy and rules stipulated by the Malaysia government. Malaysia Government (2012) stated that 12% of lesson in schools were delivered at a high standard, utilizing many best practice pedagogies and 38% met satisfactory standards. Apart from that, based on findings in the World Data on Education (2011), the Ministry of Education has systematically planned and drawn up curriculum and assessment guidelines for all training programs. These have been done for both pre-service and in-service training programs and also at the undergraduate levels to meet current the requirements of schools. Furthermore, the ministry is also reinforcing the selection of teachers into the teacher training programs. World Data on Education (2011) revealed that selection of candidates for the pre-service teacher programs at the ITE is based on three main criteria;

1) performance grades in test taken at the end of secondary education;
2) performance in the written qualifying test; and
3) performance in an interview.

Similarly, pre-service trainings for vocational teacher profession can follow the route similar to non-vocational teachers. These trainings are aimed at equipping pre-service vocational teachers with the same necessary subject knowledge, professional skills and attitudes for effective knowledge delivery. *Pertaining to the trainings, pre-service vocational teachers also need to equip themselves with hands-on skills in order to teach practical, workshop, or skill subjects. Therefore, pre-service teachers put more emphasis on practical work to develop competency in trade skills as required by the training institutions and industries. Under the ITE, Institute of Teacher Education, Technical Education Campus or Institut Pendidikan Guru Kampus Pendidikan Teknik (IPG KPT) is the only institute that specialized and offered a

TVET courses. The main objective of the IPG KPT is to train qualified teachers for technical and vocational schools across Malaysia.

To enhance the quality of vocational education and training relevant to the job market demands, vocational teachers can be trained at training institutions or skills training centers in specialized fields such as Advanced Technology Training Center(ADTEC), Industrial Training Institute (ILP), National Youth Skills Institute (IKBM), Terengganu Advanced Technical Institute (TATI), and others. These training institutions are under the jurisdiction of different ministries such as the Ministry of Human Resource, Ministry of Youth and Sports, Ministry of Entrepreneur and Cooperative Development, state governments, or private providers. Figure 3 shows the vocational transformation plan. Pang (2008) remarks Malaysian TVET system structure comprises of three different streams or pathways, that produce different types of Malaysian workforce, namely higher education, technical and vocational education, and skills training.

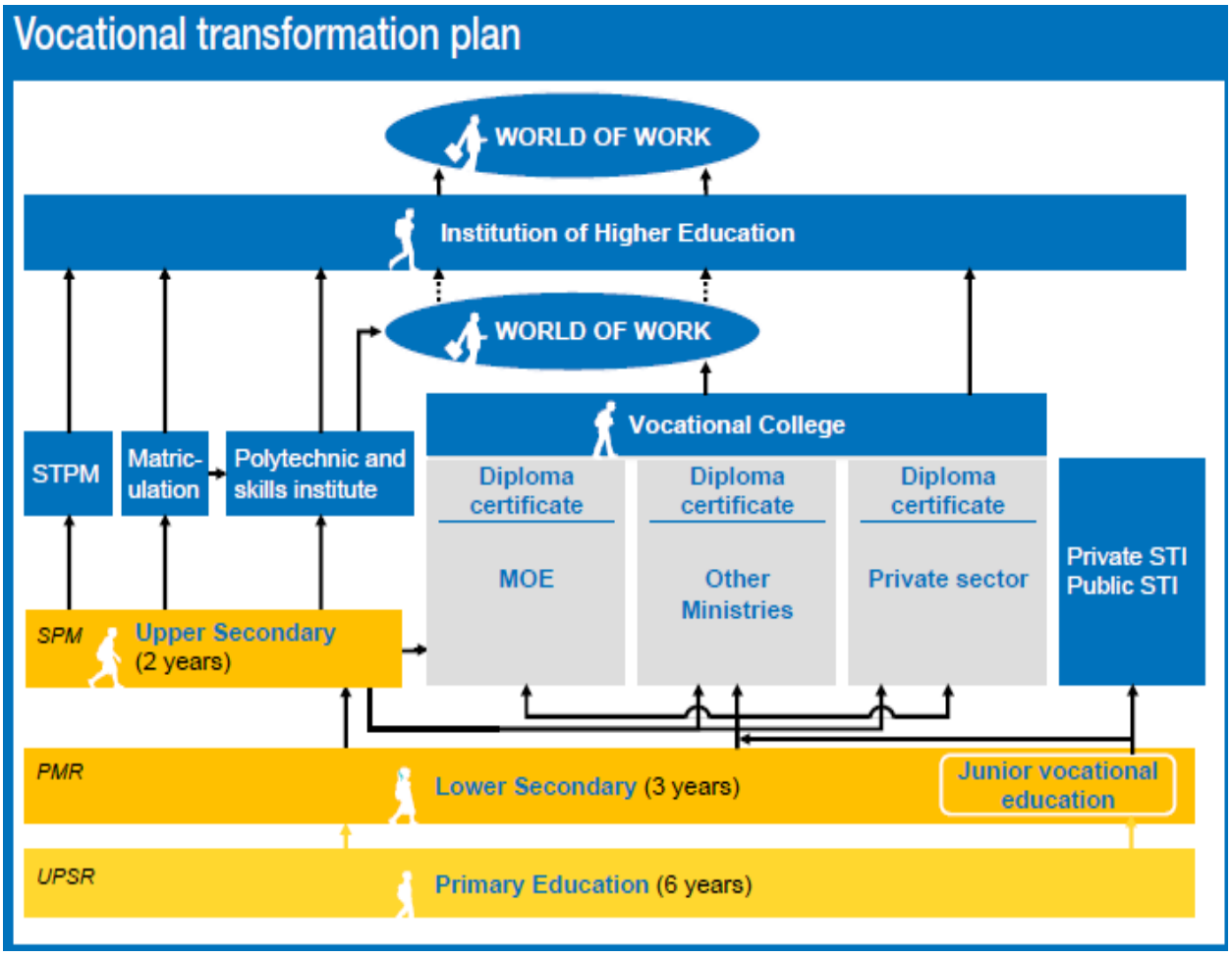


Figure 3: Vocational transformation plan (Malaysia Education Blueprint 2013-2025)

4.6 Professional teacher education program for vocational teacher in Indonesia

In accordance to the Law No. 14 Year 2005 on Teachers and Lecturers chapter 2, the teacher has a position as professionals in primary education, secondary education, and early childhood education in formal education are appointed in accordance with statutory regulations. Later in chapter 10 describes that: Competency of teachers includes pedagogical, personal competence, social competence, and professional competence acquired through professional education. The implementation of the professional education of teachers for vocational teachers is applied through professional education collaborative teacher education and integrated teacher professional. Before the implementation of the teaching profession education certification, teachers who are currently on duty obtain certification through portfolio, teacher education and professional training.

1) Teacher certification through portfolio

According to the regulations of the national education minister Number 10 of 2009 on the certification of teachers, chapter 1: Certification for in-service teacher educators is the process of granting certificates to teachers who serve as classroom teachers, subject teachers, guidance and counseling teachers or counselors, and teachers appointed in the post of superintendent of the educational unit.

Competency test as intended can be followed by in-service teacher who has an undergraduate academic qualification (S1) or Diploma (D-IV). In addition, it should be followed by those who have not met the academic qualifications S1 or D-IV but he/she has reached the age of 50 years and has 20 years of experience working as a teacher. Test competency for teachers in these positions is done in the form of portfolio assessment.

Portfolio assessment referred to a recognition of the professional experience of teachers in the form of an assessment of the document that describes: (1) academic qualifications; (2) education and training; (3) teaching experience; (4) planning and implementation of learning; (5) assessment by principals and supervisors; (6) academic achievement; (7) professional development work; (8) participation in scientific forums; (9) the experience of the organization in the field of education and social, and (10) awards that are relevant to the field of education.

Teachers who do not pass the portfolio assessment can do as following: (1) complete portfolio of document in order to achieve a passing grade, or (2) participate in education and training of the teaching profession (PLPG) which is terminated in accordance with the test requirements specified by the certification of the college.

2) Certification of teachers through teacher education and professional training (PLPG)

Teacher Education and Professional Training (PLPG) purpose is to improve the competence and professionalism of teachers. PLPG participants are teachers who have passed the Preliminary Competency Test. Teachers in this regards are those who serve as: (1) classroom teachers, (2) subject teachers, and (3)

guidance and counseling teacher or counselor at school. Implementation PLPG performed with the following conditions:

(1) Conducted by an education university that has been set by the Government and supported by the universities which have courses relevant to the field of study / subject teacher participants.

(2) Held for 10 days or 90 Hours of Learning, with an allocation of 44 hours of theory and 46 hours of practice. One hour is equivalent to 50-minute lessons.

Training materials prepared by considering four teacher competences, namely: pedagogical, professional, personal, and social. Standardization competencies outlined in the structure of the training curriculum developed by the Consortium for Teacher Certification. Most teaching materials developed by a consortium of universities and others by organizing educational certification with reference to the Minister of National Education Regulation Number 16 of 2007 on the Standards of Academic Qualifications and Competencies of Teachers, National Education Minister Decree number 27 of 2008 on the Standards of Academic Qualifications and Competencies counselors, Regulation national education minister number 32 of 2008 concerning the academic Qualification Standards and Competencies Teachers Special Education, and also take consideration on the new 2013 curriculum.

3) Direct teacher certification

Direct teacher certification is given to: teachers who already have a master's or doctoral qualification from an accredited college in the field of education or relevant field of study subjects or subject groups that were taught, with a group of at least Senior Teacher level or who meet the cumulative number of credits equivalent to the Senior Teacher level. The process is carried out by way of verifying the validity and accuracy of the documents.

4) Collaborative profession education for teacher in Indonesia

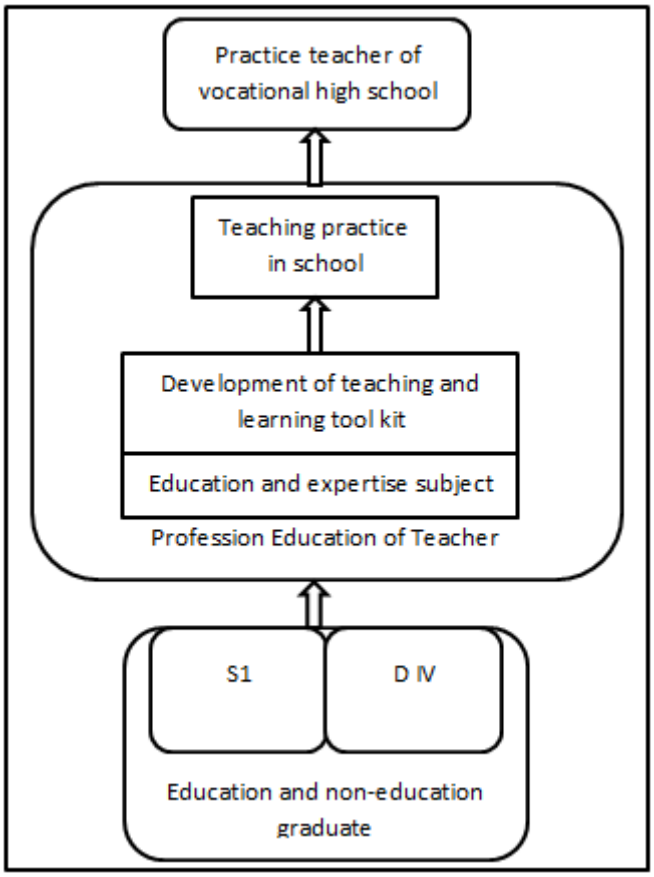


Figure 4 Implementation model of profession education of practice teacher pilot project of vocational high school in Indonesia

Integrated collaborative profession education for teacher is a professional teacher education program for graduates of diploma IV (D IV) and S1 (undergraduate). The main objective of the course is to educate the D IV graduates of polytechnic to become teachers of vocational high school. The program was implemented for the field of study that does not exist in the University of Education. Implementation of the education is done in collaboration with 5 public polytechnics. Areas of expertise are: refrigeration, airplane, ship, textile, graphics, mining, tourism, agriculture, farms, and plantations.

Collaborative teacher professional education organized based on the guideline of the implementation of the pilot program of collaborative productive vocational education teaching profession (Directorate of higher education, 2012).

5) Integrated professional education of teachers

Profession education for vocational teacher is implemented from 2011. The professional education program is an integrated professional education of teachers (PPGT: Pendidikan Profesi Guru Terintegrasi) and integrated collaborative profession education for teacher (PPGT Kolaboratif). PPGT participants prioritized for people who come from the 3T region (frontier, outer, left behind) and have a minimum academic qualification of graduation from high school (General High School/ Vocational High School).

PPGT program is organized in the same study period of bachelor academic education and professional education of teachers. Later on, the program will continue with Practice Education Field Experience (PPL= program pengalaman lapangan) intensively in partner schools, which ended with the competency test in order to have additional teaching authority. Additional teaching authority is the authority in carrying out the duties of teaching, which consists of a main teaching authority and additional teaching authority. The main authority concerned to being a teacher in practice subjects (subjects containing competency skills demanded by the relevance of the concept of the industrial world) while additional authority related to a teacher in one of the relevant adaptive subjects (subjects that support the practice skill).

4.7 Teacher education and vocational teacher profession in Malaysia

The purpose of teacher education including vocational teacher training is to equip them with the necessary knowledge, skill, and attitudes for delivery of quality services. Therefore, the development, planning and implementation of teacher education and profession are formulated in several policy documents, regulations, and laws. Under the Ministry of Education, the effort to prepare and train quality teachers is guided by the National Philosophy of Education and Philosophy of Teacher Education. According to Malaysia Government (2010), the Tenth Malaysia Plan (10thMP) 2011 – 2015 stresses on developing the nation by strengthening education and training systems. Additionally, the plan emphasize on providing the best teaching and learning infrastructures and ensuring the high level quality of teachers and educators including TVET teachers. Similarly, the Third Outline Perspective Plan (OPP3), 2001-2010, also emphasizes the priorities of education and training. In order to enhance and improve education system, the Ministry of Education introduced the Education Development Master Plan (PIPP) 2006-2010. The purpose of PIPP was to streamline the implementation of education programs including teacher education programs to produce manpower who fulfill the local and international needs. In terms of regulations and law, the development of skills training including teacher education and vocational teacher profession are still in a grey area. Retrospective review on this matter shows that the main legislation regulating on education system in Malaysia is the Education Act 1996 (Act 550) that encompasses all types of trainings including skills, specialized, job-based training, and continuing training.

The National Skills Development Act 2006 (Act 652) provides the establishment of the National Skills Development Council as well as the National Occupational Skills Standards (NOSS) that are used as measures of learning proficiency. Its roles are to outline the requirements of knowledge and ability in

terms of competencies to perform roles and functions of workers. Fulfilling the expected standards will enable trainees to be awarded a certificate, diploma, and an advanced diploma. The Act is also used in the development of the national curriculum for skills training programs. Pang, Narunan, and Sim (2010) suggested that the establishment of Act 652 ensures skills training programs are in accordance to the actual needs of the relevant industries in Malaysia. NOSS is a skill standard developed by the Department of Skill Development, Ministry of Human Resource.

There are five qualification levels under the NOSS; SKM or Malaysian Skills Certificate Level 1, SKM or Malaysian Skills Certificate Level 2, SKM or Malaysian Skills Certificate Level 3, DKM or Malaysian Skills Diploma Level 4, and SKM or Malaysian Skills Diploma Level 5. Nevertheless, training is the essential key for skills development for teachers and skill workers. According to Cort, Härkönen, and Volmari (2004) in their report for Professionalization of VET Teachers for Future, skills and knowledge acquired for a TVET teacher include:

1) new pedagogical skills in line with the learner-centered approach of modern pedagogical theory and on-the-job learning techniques;
2) up-to-date vocational skills related to modern technologies and work practices;
3) awareness of the needs of business and employers;
4) skills for team working and networking; and
5) management, organization and communications skills.

4.8 Part time courses for vocational teacher education in Malaysia

There are many part time courses offered for teachers under the Ministry of Education conducted by various ministries, state governments, public sectors or private sectors in Malaysia. These training providers that are under the different agencies target different groups of participants and vocational sectors for their programs although sometimes the implementations overlap. Hence, knowledge and skill upgrading courses for teacher are conducted through a series of training, workshop, or seminar either in short-term or long-term period depending on the budget and time. Similarly, part time courses for vocational teachers are also offered by various institutions either public or private institutions.

One of the major providers for vocational training and part time courses under public institutions is community colleges. The primary objective of community colleges is providing skill training and education as needed by the market or local community. Besides community colleges, Centre for Instructions and Advanced Skills training (CIAST) is also a major player in technical and vocational field. CIAST is responsible for providing training to produce highly skilled instructor and upgrading instructor skilled. Mohamed Rashid and Mohd Nasir (2003) remarked that CIAST is established to provide instructors for training institutes and skill upgrading courses. Hence, trained teachers are vital for the education system. Nevertheless, in Malaysia education environment, professional development is considered as part time courses.

Under the professional development programs, every teacher including vocational teachers are required to attend professional development programs to upgrade their knowledge, skills, and thus have better career opportunities. In line with the national policy, the Ministry of Education has instructed the requirement of seven days per year for professional development. However, data shows that over 90% of teachers including vocational teachers spend approximately ten days each year on professional development (Malaysia Government, 2012). While this may not be surprising for teachers including vocational teachers, the data shows that teachers need part time courses and professional development to upgrade their knowledge, skills, and abilities.

4.9 Legal preconditions for development new study program

The permittion of the establishment of new study program is proposed by the college to the directorate of higher education through the Directorate of Institutional and Cooperation Directorate General of Higher Education, Ministry of Education and Culture (http://prodibaru.dikti.go.id/v3/home). The establishment must include three letters and the feasibility study documents. The letters including: (1) a letter of application for the opening of new study program, signed by the rector; (2) a statement about the condition of college/university, signed by the rector; and (3) a statement of support of the academic senate, signed by the chairman of the academic senate. The feasibility study should include the following components: (1) introduction, (2) curriculum, (3) resources, (4) financing, (5) academic management, (6) the quality assurance system, and (7) conclusions. The feasibility study format refers to the Decree no. 108/Dikti/Kep/2001 Opening Program Guidelines and Law No. 19 of 2005 on National Education Standard.

Participant of the profession education can be from: bachelor of education, and bachelor of non-education. For participants from Non-education College, the curriculum structure consists of: subject specific pedagogy and educational field experience program. For participants from Education College that already implemented apprenticeship education, the curriculum consists of: subject enrichment and subject specific pedagogy, and the deepening field experience program. For the participants who had no expertise in areas of teacher professional expertise, they should meet the matriculation courses. Professional education study load for vocational teachers is 36 to 40 semester credit units.

The study programs can implement the learning with a variety of different media. The study program which implement distance learning uses a variety of communication media regulated by Law no. 12 in 2012. In Article 31, the regulation states that: (1) Distance education is a learning process that is done remotely through the use of various media of communication; (2) Distance education as referred to in paragraph (1) aims to: provide higher education to groups of people who cannot attend face-to-face education or regular, and expanding services and facilitate access to higher education in the education and learning; (3) Distance education is implemented in various forms, modes, and supported by means of coverage and service learning and assessment system that guarantees quality of graduates in accordance with the National Standards for Higher Education.

In accordance with the Regulation of the Minister of National Education Number 8 of 2009, professional education programs organized by the college of teachers who meet the requirements and are set by the minister. These requirements are:

1) Have an undergraduate course that are: (a) equal to the professional education program that will be held, (b) accredited by national accreditation bodies of at least B, and (c) has 3 lecturers with doctoral qualifications with the position of associate professor, and 4 people lecturer with a master degree qualification with a minimum academic associate professor position.
2) Have facilities that meet the requirements to support the education process.
3) Have an agency for upgrading and developing instructional activities that already and work effectively.
4) Have a programs of network and partnerships with accredited partner schools at least B and meets the requirements for the implementation of the program of field experiences.
5) Own a self-evaluation reports and quality assurance based on the facts, at least 2 years.

Based on the above two paragraphs it can be concluded that the teaching profession education programs use a variety of communication media by the combined methods of distance education (eLearning) and face-to-face or blended learning. Organizer of professional education courses is college of education that has the same study program in undergraduate degree. If the area of educational expertise teaching profession is not held by the college, then they can have a hand from other college, such as university or polytechnic.

4.10 Legal preconditions of part time (extra-occupational) study program and distance education

Directorate general of higher education since 1997 has banned the operation of a distance courses model, and weekend class (Letter No. Directorate General of Higher Education No. 2559/D/T/97). The legal constitution was reinforced by a letter from the directorate of higher education No. 2630/D/T/2000 and a letter from the directorate of higher education No. 595 / D5.1/T/2007. The letter stated that the right to conduct a distance education is the Indonesia Open University is regulated in the Government Regulation no. 1990 30 Article 56, which states that: "distance education can only be carried out by the Open University or college that are appointed to carry it out". In 2009, the Minister of National Education of the Republic of Indonesia issued Regulation No. 30 of 2009 on the implementation of off-site courses in college. The implementation of the program of study outside the domicile is the implementation of higher education by universities outside the college residency. The legal permission to establish a course is organized by the directorate of higher education. These regulations were updated in 2012 with the Minister of National Education Regulation Number 20 of 2011 on the Implementation Program beyond domicile college.

The implementation of distance education at universities governed by the regulations of the National Education Minister 107/U/2001 number, then replaced by the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 24 of 2012. Distance education (DE) education learners are separated from educators and learning using various sources of learning through information and communications technology and other media. DE serves as a form of education for students who cannot attend face-to-face education without reducing the quality of education. DE expansion aims to increase equitable access to quality education and relevant needs. DE is held on the scope of the course or courses. DE organized learning process by utilizing learning resources that should not be the same place as learners.

The curriculum used in distance education should be in accordance with laws and regulations. The learning process is carried out by: utilizing learning resources that should not be in one place with students, between teachers and students separately, emphasizing independent learning, obtaining media-based learning that utilizes information and communication technology and accessible at any time. Distance education providers are obligated to conduct the process of learning tutorials. Evaluation of learning implemented through: face-to-face, distance and on-line.

Mode of implementation of distance education programs or courses of study includes modes: single, double, and consortia. The single mode is held in all courses and the learning process or program of study. Dual mode is held in a course or courses in face-to-face and remotely. The mode of consortium is organized by several universities in the form of networks of cooperation with national and regional scope or international. The number of courses conducted remotely is over or equal to 50% of the number of all the courses in the program of study undertaken.

4.11 Proposed model of extra-occupational professional teacher education program for vocational teacher in Indonesia

The profession education for vocational teacher course that have implemented is the responsibility of higher education directorate, Ministry of Education and Culture. The regulation on the establishment of profession education for teacher is Government Regulation 87of 2013.The participants of the profession education for vocational school are: (1) S1 graduate from educational university and the study program is linier, (2) S1 graduate from educational university and the study program is in one group, (3) S1 or D IV graduates from non-education study program and the study program is linier, and (4) S1 or D IV graduates from non-education study program and the study is in one group. It can be concluded that all former students from S1 and DIV from all study programs can be a professional teacher.

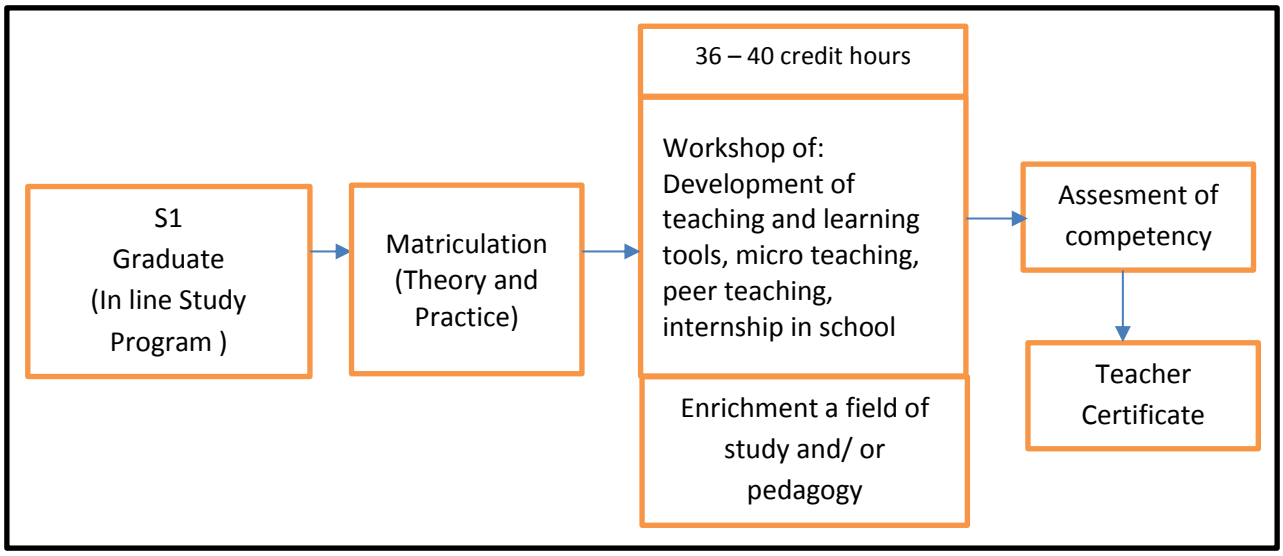


Figure 5: The existing learning model for part time study program for profession education for vocational teacher (the participant is from same study program/ expertise)

Based on the three models of learning for PPG mentioned above, there is still a possibility to apply a variety of strategies or methods of learning delivery. Implementation of matriculation, enrichment field of study, and enhancement of pedagogy can be carried out through face-to-face, practicum and eLearning. These strategies can be done by conducting theoretical courses using eLearning. While the enhancement of matriculation and laboratory studies can be done with laboratory experiments ((Figure 5).

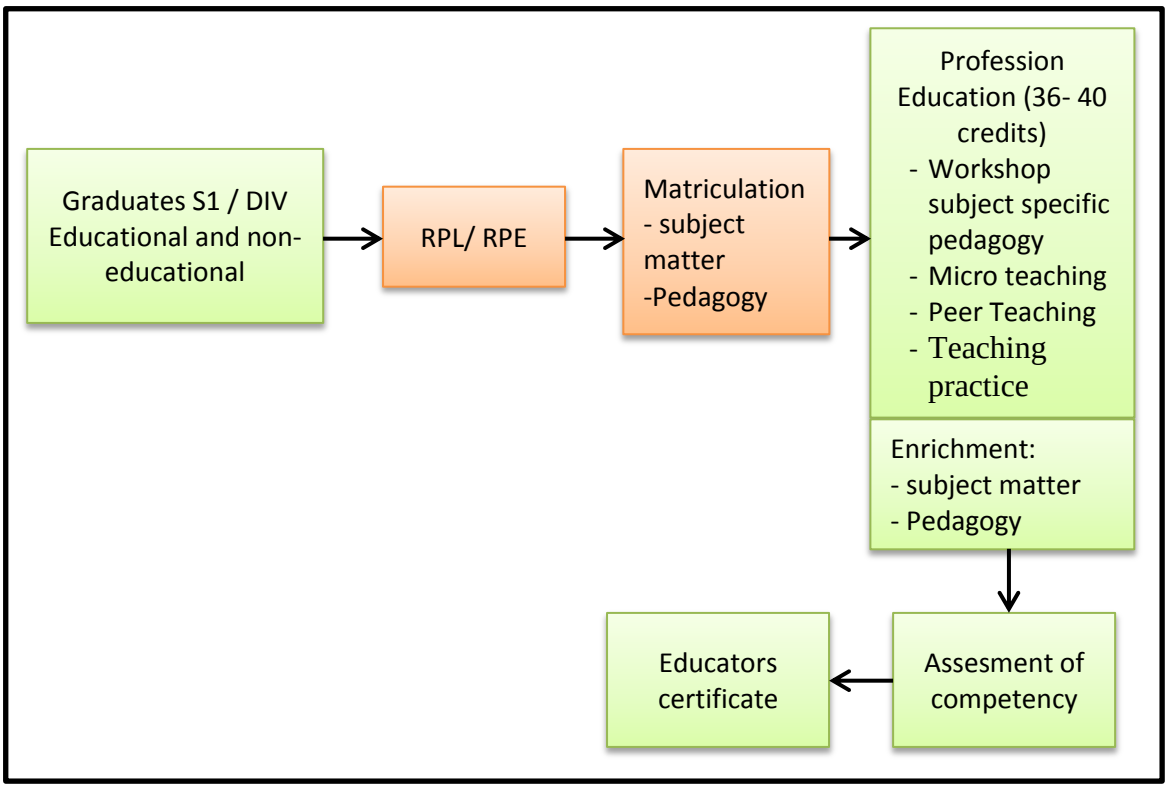


Figure 6: Proposed learning model for part time study program for profession education for vocational teacher (the participant is from non-education, the expertise is in same group)

Implementation eLearning for matriculation and enrichment can expand access to the participants and provide opportunities of communities in areas far away from the PPG program organizers. In addition, it can reduce the cost of operating the institution, if the implementation of matriculation and enrichment can be held by the ministry of education and culture through a centralized eLearning.

a. **Curriculum structure**

Semester I

1) Workshop on learning tools kits (12 credits)
2) Micro teaching (3 credits)
3) Peer Teaching (3 credits)
4) Enrichment of subject matter (6 – 12 credits)
5) Enrichment pedagogy (6 – 12 credits)

Semester II

1) Teaching practice (6 credits)

b. **Learning system / learning methods**

Professional education for teachers can use a variety of strategies / learning methods (blended learning), i.e.:

1) RPL/ RPE : portfolio
2) Matriculation
    a. Theory courses: Modules, or eLearning

b. Practical courses: practicum in lab / workshop

3) workshop
4) Micro-teaching and peer teaching: practical
5) Enrichment : eLearning,modulees, or practicum in lab/ workshop
6) Teaching practice : internship.

4.12 Study program accreditation

The accreditation of study programs in Indonesia is conducted by the National Accreditation Board for Higher Education (BAN PT). This accreditation is implemented for either existing or new study programs. Before the new study program running, it should accredited by BAN PT. Accreditation assessment component consists of 7 standards, namely: (1) vision, mission, goals and objectives, and strategies for achieving, (2) Governance, leadership, management systems, and quality assurance, (3) Students and Graduates, (4) Human resources, (5) Curriculum, learning, and academic atmosphere, (6) Funding, facilities and infrastructure, and information systems, and (7) Research, service to community, and cooperation.In addition to the seven standards, the accreditation process should also be equipped with a self-evaluation report contains: SWOT analysis for each component of accreditation, and the way of solving problems that arise. The ddescription of each component of the above standards is in the following paragraphs.

Vision, mission, goals and objectives, and strategies for achieving should be in line with those in faculty and university. Governance system should be able to explain its effectiveness in terms of a mutually agreed mechanism, as well as to maintain and accommodate all the elements, functions, and roles in the course of study. Governance must be supported by an organizational culture that is reflected by the establishment of rules, lecturer ethics, student ethics, ethical employees, as well as reward and punishment system guidelines and procedures (administrative, library, laboratory, and studio). Governance systems (inputs, processes, outputs and outcomes as well as the external environment that ensures the implementation of good governance) should be formulated, disseminated, implemented, monitored and evaluated with clear rules and procedures.

Effective leadership is expected to direct and influence the behavior of all the elements of the study program, follow the values, norms, ethics, and culture of the organization agreed, and be able to make the right decisions and fast. Leadership must be able to predict the future, formulate and articulate a vision that is realistic, credible, and communicate the vision of the future, which emphasizes on the harmony of human relations, intellectual and wise for members to realize the vision of the organization, and to be able to provide direction, purpose, role, and assignment to all elements in college.

Management system must be able to explain the functional and operational of study program includes: planning, organizing, staffing, leading, controlling, as well as internal and external operations. Described the quality assurance, consist of: plans, procedures, and results of the process. Quality assurance includes internal quality assurance through internal quality evaluation.

On student standards section, internal quality assurance should explain about the interest and the number of students accepted in a certain period of time according to length of study. Data description of graduates includes descriptions of quantitative data and qualitative data of graduates and user feedback.

Human resources should be explained about the system of selection / recruitment, placement, development, retention, and dismissal of faculty and academic staff to ensure the quality of the academic program delivery.

The curriculum should contain structured competency standards in core competencies, and other supporters that support the achievement of objectives, the implementation of the mission and the vision of a study program. The curriculum includes courses / modules / block that supports the achievement of competency and provide flexibility to the students to broaden and deepen expertise in accordance with their interests, and equipped with a description of the course / modules / block, syllabus, lesson plans and evaluations. The design of the curriculum should be relevant to: the purpose, scope and depth of the material, the organization which encourages the formation of hard skills and personality and behavioral skills (soft skills) that can be applied in various situations and conditions.

In the section of standard of finance, infrastructure and information systems, it should describe the data on the active involvement of a study program that can be seen on: documents on the planning, management and reporting and financial accountability to stakeholders through a transparent and accountable mechanism. In addition, it should explain about the data: the faculty office space, and infrastructure (offices, classrooms, laboratories, studios, library, and field experiments). Data collections must be described on the reference number of titles of books and journals in book and digital form. Regarding the information system should be explained about information systems and facilities used by the program for the study of the learning process (hardware, software, e-learning, library).

Standards of research, community services, and cooperation must be able to explain the amount and funds for research and community service programs carried out by the study. Cooperation with outside parties also to be disclosed regarding: number of cooperation, areas of cooperation, and the benefits of cooperation for the study program.

4.13 The availability of computers and internet connection in college of education

Blended learning model requires the availability of facilities and infrastructure. In this regard, the following paragraph will be described the availability of internet in: education colleges, vocational schools, and in society. The purpose of this is to provide an overview description of a possible implementation of blended learning for extra-occupation study program of profession education for vocational teacher in Indonesia.

1) Availability of internet connection in college of education

All universities in Indonesia have had internet access for the purposes of administration, communication, and instructional media. It can be seen from the website all universities in Indonesia. Especially for

instructional media through eLearning, some college teacher education providers have made an official website. Table 1 below shown college name, eLearning LMS address, and the software used for the eLearning. In addition to 10 college of education as providers of vocational teacher education, also displayed two teacher training institutes and two universities with educational courses are University of Surakarta (UNS) and the Open University Indonesia.

Table 7: **ELearning website address of college of education and teacher training institutions in Indonesia**

No	Name of the University	Website/ LMSaddress	Software LMS	Content (undergraduate/S1, Graduate S2,Profession/ PPG)
1	State University of Padang	http://elearning-ft.unp.ac.id/	Moodle	S2= 29 subjects S1/D3/D-IV=9 subjects PPG = 0
2	State University of Medan	http://sipoel.unimed.ac.id/	Moodle	S3/S2=0 S1/D3/DIV= 72 subjects PPG=1 subjects
3	State University of Jakarta	http://ft.unj.ac.id/elearning/	moodle	Content cannot access
4	State University of Makasar	http://elearning.unm.ac.id/ http://lms.unm.ac.id/	moodle	S2>100 subjects S1/D3/DIV= 134 subjects PPG= n.a
5	State University of Semarang	http://elena.unnes.ac.id/	moodle	S1>100 subjects S2=19 subjects PPG = n.a
6	State University of Surabaya	http://elearning.unesa.ac.id/	moodle	S1>100 subjects
7	State University of Malang	http://e-learning.um.ac.id/	moodle	S1= 55 subjects PPG= 1 subjects
8	Yogyakarta State University	http://besmart.uny.ac.id/	moodle	S1>100subjects PPG>50 subjects PPG=6subjects
9	Education University Indonesia (UPI)	http://lms.upi.edu/	moodle	S1>100subjects S2/S3=1subjects PPG=n.a
10	State University of Manado	http://elearning.unima.ac.id/	moodle	Contents cannot access
11	Universitas Pendidikan Indonesia	http://undiksha.ac.id/moodle/	moodle	S1>100subjects S2=2subjects PPG = n.a
12	Sebelas Maret University	http://elearning.uns.ac.id/ and http://www.semar.fkip.uns.	moodle	S1=7subjects Faculty of Education/FKIP = 11 subjects

No	Name of the University	Website/ LMSaddress	Software LMS	Content (undergraduate/S1, Graduate S2,Profession/ PPG)
		ac.id/		
13	Open University Indonesia	http://student.ut.ac.id/	moodle	S1, and S2 (all subjects is delivered with distance learning)
14	P4TK BMTI Bandung/ PEDC	http://etraining.tedcbandung.com/	Moodle	5 subjects
15	P4TK BOE Malang/ VEDC	http://elearning.vedcmalang.or.id	Moodle	18 subjects

According to the table 7 above, it can be seen that all university education that own a computer infrastructure and internet networks are adequate for the learning process through the internet.

Table 8: **Comparison of components of the implementation of eLearning in four Education Universities in Indonesia**

ELearning components	YSU	MSU	VEDC	TEDC
Hardware	a.Hardware Web application CPU = 2 Virtual CPU Intel Xeon X5675 3GHz RAM = 4GB Hard disk = 500GB SAS hardware Database Application CPU = 2 Virtual CPU Intel Xeon X5675 3GHz RAM = 8GB Hard disk = 110GB SAS	Server: Intel XEON 3220 Double Processor [2.4GHz] withRAID-10 disk and RAM 8GB.	Intel Xeon E5310, 1,60 GHz, 4 Gb memoryy, Hard disk 300 Gb.	Rack Mount dedicated SERVER INTEL DUAL CORE (2 units).
Software	LMS open source Moodle	Moodle, Claroline, eFront.	LMS Moodle , Hot Potatos, Sigil, and Flip book maker.	LMS Moodle, CourseLab, and Adobe Flash.
The numbers of lectures useeLearning (%)	Below 50%	Below 50 %	>50 %	Try out
Inhibiting factors	Participation of lectures in using eLearning is low; lectures have not sufficient knowledge in multimedia learning and eLearning, limitations of time and effort in using eLearning, the existing of eLearning as a burden for lectures and students.	It is not easy to change the culture in using conventional learning to eLearning	ELearning certificate not yet acceptable, internet connection in vocational school is limited, participants are not accustomed to using internet, participant did not work seriously when use eLearning.	Not yet identified
Supporting factors	Support from leaders, the existing facilities	The existing facilities	Teachers should improve their knowledge continuously	The existing facilities, the teacher should use ICT

Comparison of learning to use eLearning implementation in two university education (Malang State University / MSU) and Yogyakarta State University / YSU), and two vocational teacher training institutions (Vocational Education Development Center / VEDC, and Technical Education Development Center / TEDC) obtained through questionnaires. The questions on the questionnaire contains: hardware and software specifications, the number of courses through eLearning, internet providers, inhibiting factors and supporters, and the difficulties faced in implementing eLearning. Comparison of the data obtained can be seen in Table 1.

2) Availability of internet connections in Vocational School

Directorate of vocational high school has held a procurement program for the internet network to all vocational high schools since 1999. Based on data from the data base of SMK (http://datapokok.ditpsmk.net/), has recorded 60% of website vocational schools, and 39% have recorded the coordinates of its location.

Based on the above data it can be seen that 60% of high school vocational school has a website that shows that the school has adequate computer and internet connection.

3) Availability of internet on society

Based on the survey conducted by the Indonesian Internet Service Provider Association, in 2012 the number of internet users in Indonesia is 63 million people or 24.23% of the Indonesian population. By 2013 the estimated number of Internet users increased by 30% to 82 million people. Internet network in Indonesia is supported by many internet service providers. Based on the coverage area of the Internet in Indonesia, it can be seen that the majority of internet networks are available in Java, the main island, while outside Java Island exists only in big cities.

Based on questionnaires to students participating in professional education of teachers of the outermost regions in Indonesia, it is known that most of the outlying areas there is no fixed telephone network, the communication network via a mobile phone. Outermost regions are: Aceh, Papua, and East Nusa Tenggara. Participants consisted of 7 people of Aceh, 13 people of East Nusa Tenggara, and 7 people from Papua. Recapitulation of internet usage data is shown in Table 8.

Table 9: **Availability of internet network in outermost regions of Indonesia**

Province	**Internet Network**	**Device for connections**	**Number of telecommunication provider**	**Using Internet**
Aceh	available	Internet cafe, Laptop+ modem	1-2	Never, rare
East Nusa Tenggara	Available. Not available in emote area	Internet cafe, computer in school, laptop+modem, mobile phone	1-3	rare
Papua	Available. Not available in emote area	Internet cafe, laptop+modem	2-3	Rare, often

4.14 Similar study program that could partially incorporated

Profession education of teachers collaboratively implemented in four college education (State University of Padang, State University of Jakarta, Yogyakarta State University, and State University of Malang), has been underway for two years.

Collaborative teacher education profession is organized in cooperation with several polytechnics D-IV, namely: Agricultural Polytechnic Payakumbuh, Lampung Polytechnic, Agricultural Polytechnic Kupang, and the Polytechnic of Jember. At each school year, each education university received 30 people. Length of study of this program is four semesters, two semesters at the polytechnic and two semesters at education university. Thus, if the education university does not have a particular area of expertise, then the learning process carried out in collaboration with the polytechnic or other university.

4.15 Participations of companies and schools

Participants of vocational education teaching profession which is currently implemented are: graduate of college of education, graduate of non education university, polytechnic graduates, and graduates of vocational high schools. Of all the participants of professional education program for vocational teacher in Indonesia, there is no participants from the workers in the company.

4.16 Comparation of teacher training for vocational teacher in Indonesia and Malaysia

Based on the data in the above description, it can be analyzed components of the program for the study of extra-occupation vocational education teaching profession. Comparison of components of vocational teacher education in Indonesia and Malaysia can be seen in the table below. Comparison include: the number of vocational schools, polytechnics number, number of vocational teacher education institutions, vocational competencies group, the number of courses, the availability of the internet for e-learning / distance learning in teacher education institutions, regulatory support regarding distance learning, the availability of the Internet in society, institutions that have the authority to accredit courses, and educational institutions can be invited to cooperate for vocational teacher education.

Table 10: **Comparison of components of the implementation of vocational education teaching profession between Indonesia and Malaysia**

Components	Indonesia	Malaysia
The number of vocational high school	11.707 Vocational High School	78 Vocational College
The number of Polytechnics	34 (Public)	30 Polytechnics 68 Community College
The number of Teacher Training (College of Education) for vocational teacher	12 (Public)	2 (Public University and College)
Group of Competency	6 groups	8 groups
Full time study program for teacher training for vocational teacher	All study program is full time	Full time and part time
The number of Study program for teacher training for vocational teacher	28 study programs (undergraduate)	17 (post graduate, bachelor, master, doctor)
The availability of internet connection in university/ college of education	All university have eLearning facility	All university have eLearning facility
Support government regulations/ laws for the for the implementation of part time study program	there is support in the form of laws and regulations	there is support in the form of laws and regulations
The availability of the Internet on society	Available in urban areas. In remote areas unreachable	Available in all areas
Authorized agency to implement accreditation	National Accreditation Board for Higher Education (BAN PT Indonesia)	Malaysian Government Qualifications Agency (MQA)
Educational institutions can be invited to cooperation	34 polytechnics, Indonesia Open University	30 polytechnics

5 Conclusions and Recommendations

5.1 Conclusions

Based on the description of the results of the study in the previous chapter, the conclusion can be stated as follows:

1) Many legal preconditions support for the development of extra occupational study program of teacher profession education in Indonesia and Malaysia, include: laws, regulations, and manuals. Institution that is charged to organize professional education is teacher training universities in Indonesia, and College of Education and Education University in Malaysia.
2) College National accreditation board of higher education is the agency in charge of accrediting professional courses in Indonesia. Malaysian Government Qualifications Agency (MQA) is the agency in charge of accrediting academic and professional courses in Malaysia.
3) All teacher training universities have the utilities to implement eLearning and distance learning,
4) Institutions can work with in developing extra-occupational study programs are: polytechnics, colleges, and Open University.

5.2 Recommendations

Based on the above results, it can be submitted the following recommendations:

1) The requirements for the establishment of part-time study program in Indonesia are very tight, therefore take cooperation with the Open University which has have the infrastructure to conduct distance learning would be a good move.
2) Vocational Technology Education Association (Aptekindo) may play a role in developing part-time courses of profession education for vocational teacher.
3) Regional Cooperation Platform (RCP) and the University of Education in Germany can play a role in coordinating the development of part-time courses for profession education in South East Asia and China.

6 References

Azman, N., & Ahmad, A. R. (2006). History, trends, and significant development of adult education in Malaysia. Journal of Historical Studies, 7(2), 66-82

Batista, M., Alvarez, M., Sanchez-Carrilero, M., et al. (31 Agustus 2009). CAL-CBT Based Virtual Learning and Training in Machining Engineering. A Case Study: CNC Lathe. Material Science Forum, 625, 19-28.

Board of Engineers, Malaysia Institution of Engineers, &Malaysia Federation of Engineering Institution of Islamic Countries (2003). The engineering technology path: Blueprint for a highly competent engineering technical workforce. Online: http://www.engtech.org.my/Engineering%20Tech%20Path.pdf

Cort, P., Härkönen, A., & Volmari K. (2004). Professionalisation of VET teachers for the future.Luxembourg: Office for Official Publication of the European Communities

Cooper, J. D. (2008). Professional development: An effective research-based model. Online: http://www.washingtonstem.org/STEM/media/Media/ Resources/Professional-DeveloPment-An-Effective-Research-Based-Model-COOPER.pdf

Departemen Pendidikan Nasional.(2009). Peraturan Menteri Pendidikan Nasional Republik Indonesia No. 8 Tahun 2009 tentang Program Pendidikan Profesi Guru Pra jabatan.

Departemen Pendidikan Nasional. (2003). Undang-undang Republik Indonesia Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional. Jakarta: Departemen Pendidikan Nasional

Departemen Pendidikan Nasional.(2003).Kurikulum Berbasis Kompetensi Standar Kompetensi Mata Pelajaran Sains Sekolah Dasar dan Madrasah Ibtidaiyah. Jakarta: Departemen Pendidikan Nasional

Departemen Pendidikan Nasional. (2005). RENSTRA Departemen Pendidikan Nasional 2005-2009, Jakarta: Departemen Pendidikan Nasional

Departemen Pendidikan Nasional.(2006). Peraturan Menteri Pendidikan Nasional Nomor 16 Tahun 2006 Tentang Standar Kualifikasi dan Kompetensi Guru. Jakarta: Departemen Pendidikan Nasional.

Dennis, D. H., & Hudson, C. C. (2007). Workforce education and two important viewpoints. Journal of Industrial Teacher Education, 44(2), 89-98.

Drabble, J. H. (2000). An economic history of Malaysia 1800-1990: The transition to modern economic growth. London: Macmillan Press and New York: St. Martin's Press.

Essel, R., Badu, E., Owusu-Boateng, W., & Saah, A. A. (2009). In-service training: An essential element in the professional development of teachers. Malaysian Journal of Distance Education, 11(2), 55-64.

Faculty of Technical and Vocational Education (2013). Programmes offered. Retrieved from http://www.uthm.edu.my/v2/content/view/89/99/lang,en/.

Haas, A. R. (1999). Trends in articulation arrangements for technical and vocational education in the South East Asian region. Melbourne, Australia: RMIT University. Online: http://www.unevoc.unesco.org/fileadmin/user_upload/pubs/rmit99.pdf

Indonesia. (2005).UU No. 14 Tahun 2005 tentang Guru dan Dosen. Pemerintah Indonesia

Indonesia. (2012). UU No. 12 Tahun 2012 tentang Pendidikan Tinggi. Pemerintah Indonesia

Johnson, S.D, at all. (2004). Internet-Based Learning in Postsecondary Career and Technical Education. Journal of Vocational Education Research, 29(2), pp. 101-119.

Kementerian Pendidikan dan Kebudayaan. (2012). Sertifikasi Guru dalam Jabatan Tahun 2013-Buku 1: Pedoman Penetapan Peserta. Jakarta: Kemendikbud.

Kyong-Jee Kim , Curtis J. Bonk , and Ya-Ting Teng.(2009). The present state and future trends of blended learning in workplace learning settings across five countries. Asia Pacific Educ. Rev. (2009) 10:299–308

Labor Force Statistic Malaysia (2011). Number of employed persons in Malaysia 2011. Putrajaya, MY: Ministry of Human Resources.

Lutz Goertz.(2010. E-Learning Made in Germany- Market and Trend. ELBA Conference Rostock, 1 July 2010.

Malaysia Government .(2012).Preliminary report: Malaysia education blueprint 2013-2025. Kuala Lumpur, MY: Ministry of Education

Malaysia Government (2012). Malaysia education blueprint 2013-2025. Putrajaya, MY: Ministry of Education.

Malaysia Government (2010). Tenth Malaysia Plan 2011 –2015. Putrajaya, MY: Economy Planning Unit.

Malaysia Government (2006). Education act 1996. Kuala Lumpur, MY: PercetakanNasionalBerhad

Ministry of Education Indonesia. (2012). Pedoman Pelaksanaan Rintisan Program Kolaboratif Pendidikan Profesi Guru SMK Produktif. Jakarta :Ministry of Education.

Ministry of Education Indonesia. (2012). Draft of Vocational College Curriculum Standard Document Ministry of Education. Putrajaya, MY: Ministry of Education.

Malaysian Qualification Agency (2011). Malaysian qualifications framework. Retrieved from http://www.mqa.gov.my/

Malaysia Standard Classification of Occupation (2008). Principle of classification of occupations. Putrajaya, MY: Ministry of Human Resources.

Mohamed Rashid, N. B., & Mohd Nasir, A. B. (2003, June). Lifelong learning in Malaysia. Paper presented at the International Policy Seminar Co-organised by IIEP/UNESCO and KRIVET, Seoul, Korea

Mokshein, S.E., Ahmad, H., & Vongalis-Macrow, A. (2009). Secondary teacher policy research in Asia: Toward providing quality secondary education, training and retraining quality teachers in Malaysia. TH: UNESCO Bangkok.

Muijs dan Reynolds.(2008). Effective Teaching. Pustaka Pelajar : Yogyakarta

Nagappan, R. (2001). The teaching of higher-order thinking skills in Malaysia.Journal of Southeast Asian Education, 2(1).

Noe, R.A. (2008). Employee Training & Development. Fourth edition. Boston: McGraw-Hill.

Pang, C. L. (2008).A historical account of skills training in Malaysia. In Loose, G., Spottl, G., & Shahir, Y. M. (Eds). Re-engineering dual training- the Malaysian experience, 165-176. Frankfurt am Main: Peter Lang.

Pang, C. L., Narunan, R., & Sim, S. (2010). Background paper for Malaysia: Skills development in the workforce in Malaysia. Paper presented at ILO/SKILLS-AP/Japan Regional Technical Workshop and Study Programme on Skills Training.

Technical and Vocational Education Division (2013).Vocational education transformation. Online: http://www.bptv.edu.my/v3/ index.php/transformasi-pendidikan-vokasional

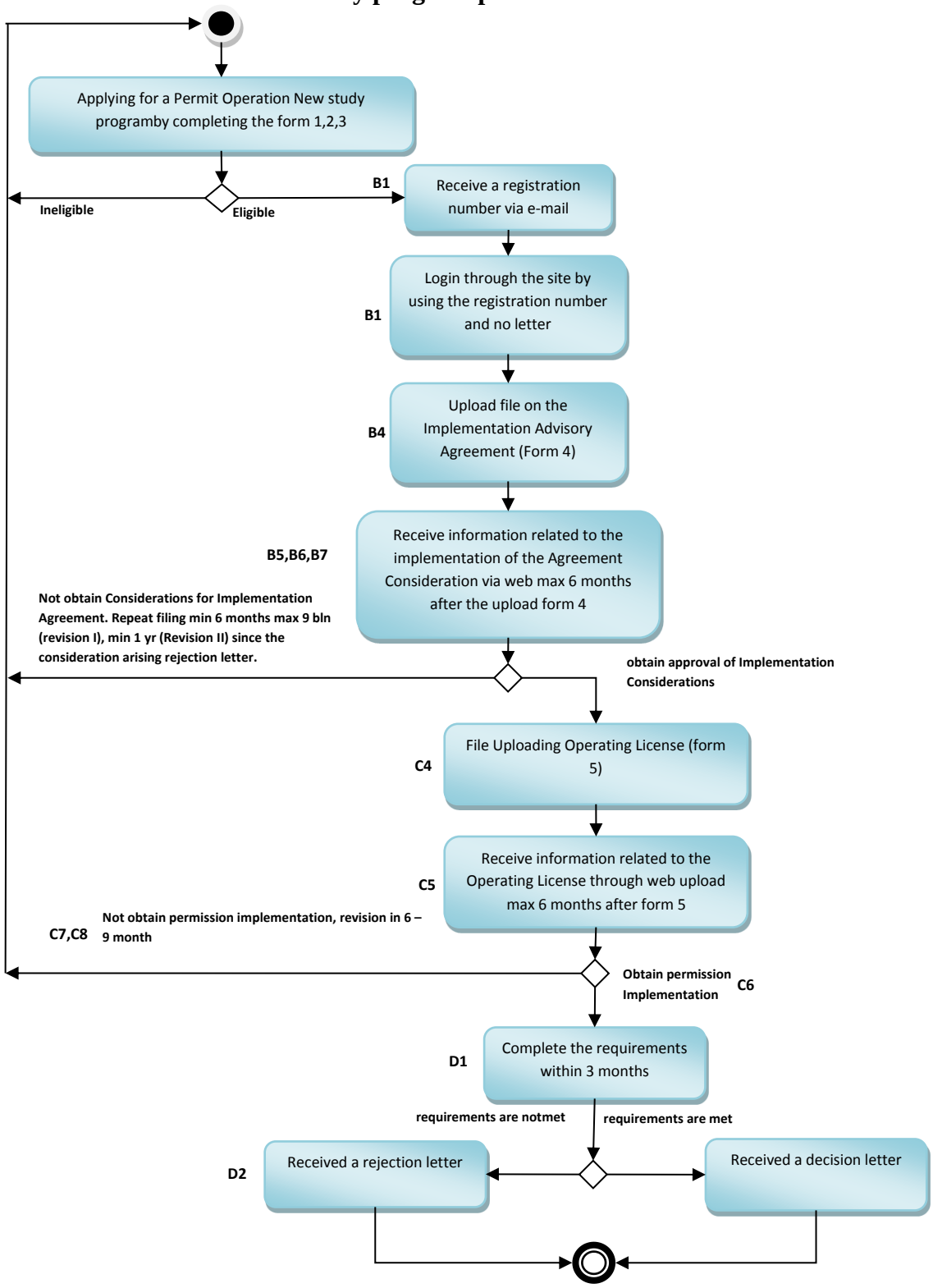
Unesco.(2011). World Data on Education.7th edition 2010/2011.

Wan Azlinda Wan Mohamed. (2010). INCORPORATING VOCATIONAL SKILLS TRAINING IN TVET TEACHER EDUCATION. Universiti Tun Hussein Onn Malaysia, Johor, Malaysia.

World Data on Education (2011). United nations education, scientific and cultural organization. Online: http://www.ibe.unesco.org/en/services/online-materials/world-data-on-education/seventh-edition-2010-11.html

7 Appendix

7.1 Flowchart of the new study program permition in Indonesia



7.2 Appendix Tables

Table A1: **Prediction the number of Graduates S1 and DIV for Vocational Teacher Education in Indonesia**

Nama Universitas		Nama Program Studi dan Peringkat Akreditasi																													Jml
		Pend. Teknik Mesin (S1)	Pend. Teknik Otomotif (S1)	Pend. Teknik Elektro (S1)	Teknik Elektro (S1)	Teknik Elektro Industri (D4)	Pend. Teknik Elektro-nika (S1)	Pend. Teknik Bangunan (Sipil (S1)	Pend. Teknik Arsitek-tur (S1)	Teknik Arsitek-tur (S1)	Teknik Sipil (S1)	Teknik Pertam bangan (S1)	Pend. Teknik Infor-matika dan Kom-puter (S1)	Pend. Kesejah teraan Keluarga (S1)	Pend. Tata Boga (S1)	Pend. Tata Busana (S1)	Pend. Tata Rias dan Kecan-tikan (S1/D4)	Manajr emen Perho telan (S1)	Pend. Akuntansi (S1)	Pend. Ekonomi (S1)	Pend. Koperasi (S1)	Pend. Bisnis dan Manaj emen (S1)	Pend. Adm Perkan toran (S1)	Pend. Seni Musik (S1)	Pend. Seni Tari (S1)	Pend. Kerajinan (S1)	Pend Seni Rupa (S1)	Pend. Teknologi Agro Industri (S1)		
UNP Padang	Jumlah Lulusan (orang)	81	101	74	-	12	69	71	-	-	-	Belum Ada lulusan	-	-	30	30-	17	Belum ada lulusan	20	40	-	20	20	40	40	40	60	-	882	
	Akreditasi	A	A	A	-	Dalam Proses	B	B	-	-	-	Dalam Proses	Dalam Proses	B	B	B	Dalam Proses	Dalam Proses	B	B	-	B	B	B	B	B	B	-		
UNY Yogya karta	Jumlah Lulusan (orang)	94	80	50	-	-	55	34	-	-	-	-	70	25	43	51	52	-	80	80	-	80	40	80	82	76	90	-	1162	
	Akreditasi	A	B	A	-	-	A	B	-	-	-	-	B	B	A	B	B	-	A	-	-	-	A	-	-	-	-	-		
UPI Bandung	Jumlah Lulusan (orang)	59	-	47	25	-	-	34	46	Belum Ada lulusan	5	-	-	15	40	33	-	-	50	40	-	40	40	-	-	-	-	Belum Ada lulusan	474	
	Akreditasi	B	-	A	Dalam Proses	-	-	B	Dalam Proses	-	Dalam Proses	-	-	A	A	B	-	-	B	A	-	A	A	-	-	-	-	-		
UM Malang	Jumlah Lulusan (orang)	43	11	10	-	-	-	63	-	-	-		138	-	59	60	-	-		-	-	-	-	-	-	-	-	-	384	
	Akreditasi	A	B	Dalam Proses	-	-	-	B	-	-	-		B	-	B	B	-	-	-	-	-	-	-	-	-	-	-	-		
UNESA SURABAYA	Jumlah Lulusan (orang)	60	66	60	-	-	62	60	-	-	-	Belum Ada lulusan	-	-	60	60	30	-	30	30	-	20	20	-	-	-	-	-	458	
	Akreditasi	B	B	B	-	-	B	B	-	-	-	-	-	-	Dalam Proses	Dalam Proses	Dalam Proses	-	-	-	-	-	-	-	-	-	-	-		

Nama Universitas		Nama Program Studi dan Peringkat Akreditasi																												Jml
		Pend. Teknik Mesin (S1)	Pend. Teknik Otomotif (S1)	Pend. Teknik Elektro (S1)	Teknik Elektro (S1)	Teknik Elektro Industri (D4)	Pend. Teknik Elektro-nika (S1)	Pend. Teknik Bangunan /Sipil (S1)	Pend. Teknik Arsitek-tur (S1)	Teknik Arsitek-tur (S1)	Teknik Sipil (S1)	Teknik Pertam bangan (S1)	Pend. Teknik Infor-matika dan Kom-puter (S1)	Pend. Mekat ronika (S1)	Pend. Kesejah teraan Keluarga (S1)	Pend. Tata Boga (S1)	Pend. Tata Busana (S1)	Pend. Tata Rias dan Kecan-tikan (S1/D4)	Manaj-emen Perho telan (D4/S1)	Pend. Akutansi (S1)	Pend. Ekonomi (S1)	Pend. Koperasi (S1)	Pend. Bisnis dan Manaj emen (S1)	Pend, Adm Perkan toran (S1)	Pend. Seni Musik (S1)	Pend. Seni Tari (S1)	Pend. Keraji nan (S1)	Pend Seni Rupa (S1)	Pend. Tekno-logi Agro Industri (S1)	
Unimed Medan	Jumlah Lulusan (orang)	70	-	75	-	-	-	32	-	-	-	-	-	-	-	25	30	6	-	-	-	-	-	-	-	-	-	-	-	**238**
	Akreditasi	A	-	C	-	-	-	C	-	-	-	-	-	-	-	C	B	-	-	-	-	-	-	-	-	-	-	-	-	
UNIMA Manado	Jumlah Lulusan (orang)	30	-	35	-	-	-	20	-	-	-	-	120	-	15	-	-	-	40	60	200	40	-	60	-	-	-	-	-	**620**
	Akreditasi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	B	-	B	-	-	-	-	-	
UNS Surakarta	Jumlah Lulusan (orang)	56	-	-	-	-	-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**111**
	Akreditasi	A	-	-	-	-	-	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UNM Makassar	Jumlah Lulusan (orang)	34	41	39	-	-	32	44	-	-	-	-	-	-	56	-	-	-	-	50	50	50	-	-	-	-	-	-	-	**396**
	Akreditasi	B	B	B	-	-	B	B	-	-	-	-	-	-	B	-	-	-	-	B	B	B	-	-	-	-	-	-	-	
UNNES SEMARANG	Jumlah Lulusan (orang)	54	-	28	-	-	-	14	-	-	-	-	-	-	-	48	38	-	-						-	-	-	-	-	**182**
	Akreditasi	B	-	B	-	-	-	B	-	-	-	-	-	-	-	A	A	-	-	-	-	-	-	-	-	-	-	-	-	

Nama Universitas		Nama Program Studi dan Peringkat Akreditasi																													Jml
		Pend. Teknik Mesin (S1)	Pend. Teknik Otomotif (S1)	Pend. Teknik Elektro (S1)	Teknik Elektro (S1)	Teknik Elektro Industri (D4)	Pend. Teknik Elektro-nika (S1)	Pend. Teknik Bangunan /Sipil (S1)	Pend. Teknik Arsitek-tur (S1)	Teknik Arsitek-tur (S1)	Teknik Sipil (S1)	Teknik Pertam bangan (S1)	Pend. Teknik Infor-matika dan Kom-puter (S1)	Pend. Mekat ronika (S1)	Pend. Kesejah teraan Keluarga (S1)	Pend. Tata Boga (S1)	Pend. Tata Busana (S1)	Pend. Tata Rias dan Kecan-tikan (D4)	Manaj-emen Perho telan (D4)	Pend. Ekutansi (S1)	Pend. Ekonomi (S1)	Pend. Koperasi (S1)	Pend. Bisnis dan Manaj emen (S1)	Pend. Adm Perkan toran (S1)	Pend. Seni Musik (S1)	Pend. Seni Tari (S1)	Pend. Kerajin nan (S1)	Pend Seni Rupa (S1)	Pend. Tekno-logi Agro Industri (S1)	
UNJ Jakarta	Jumlah Lulusan (orang)	301	-	180	-	-	160	154	-	-	-	-	19	-	25	171	134	100	-	150	-	100	-	100	-	-	-	-	-	1244
	Akreditasi	B	-	B	-	-	Dalam Proses	B	-	-	-	-	Dalam Proses	-	Dalam Proses	A	A	A	-	A	-	A	-	A	-	-	-	-	-	
UNDIKSHA Singaraja																														
													C		B															
UNG Gorontalo																														
									Belum Ada lulusan	Belum Ada lulusan	Belum Ada lulusan	Belum Ada lulusan																		
JUMLAH		882	299	606	25	16	378	581	Belum Ada lulusan	Belum Ada lulusan	Belum Ada lulusan	Belum Ada lulusan	459	25	199	344	405	205	40	260	410	90	140	160	100	122	116	130	Belum Ada lulusan	5967

Table A2: **Recapitulation PPGT Collaborative participants in 2011.**

Jurusan/Prodi D4	PT Penyelenggara		Jumlah
	D4	PPG	
Teknik Produksi Benih (Seed Production Techniques)	Politeknik Negeri Jember	Universitas Negeri Malang	20
Manajemen Bisnis Unggas (Poultry Business Management)	Politeknik Negeri Jember	Universitas Negeri Malang	10
Manajemen Pertanian Lahan Kering (Management of Dryland Agriculture)	Politeknik Pertanian Negeri Kupang	Universitas Negeri Yogyakarta	30
Manajemen Produksi Pertanian (Agricultural Production Management)	Politeknik Pertanian Negeri Payakumbuh	Universitas Negeri Padang	30
Budidaya Tanaman Perkebunan (Plantation Crops)	Politeknik Negeri Lampung	Universitas Negeri Jakarta	30

Table A3: **Recapitulation PPGT participants in 2011**

LPTK Penyelenggara	Aceh	Nusa Tenggara Timur	Papua	Sulawesi Utara	Jumlah
Universitas Negeri Surabaya	7	41	13		61
Universitas Bengkulu	21	14			35
Universitas Negeri Manado		15	12	8	35
Universitas Negeri Jakarta	10	19	6		35
Universitas Negeri Makassar	8	46	15		69
Universitas Negeri Semarang	10	17	5		32
Universitas Negeri Padang	37	20	4		61
Universitas Negeri Yogyakarta	21	32	13		66
Universitas Pendidikan Indonesia	11	18	6		35
Universitas Sanata Dharma	10	19	6		35
Jumlah	135	241	80	8	464

Table A4: **Recapitulation participants PPGT In 2012**

No	Propinsi	Aceh	Kalbar	Kaltim	Kepri	Maluku	NTT	Papua	Papua Barat	Sulut
1	Universitas Negeri Padang	54	0	0	0	0	6	5	1	5
2	Universitas Negeri Jakarta	24	8	1	1	1	1	0	0	0
3	Universitas Pendidikan Indonesia	9	0	0	0	0	27	0	0	0
4	Universitas Negeri Semarang	2	0	4	1	0	7	22	0	0
5	Universitas Negeri Yogyakarta	25	0	4	1	1	30	6	2	2
6	Universitas Negeri Surabaya	26	0	2	0	1	37	3	0	1
7	Universitas Negeri Makasar	10	0	6	0	7	37	7	2	3
8	Universitas Negeri Menado	0	0	0	0	0	0	6	14	16
9	Universitas Bengkulu	15	0	0	0	0	20	1	0	0
10	Universitas Sanata Dharma	0	0	0	0	0	34	2	0	0
	Jumlah	165	8	17	3	10	199	52	19	27