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PROCEEDINGS

4th International Conference
on Vocational Education and Training 2016



**“Strengthening TVET in
ASEAN Economic Community”**

Yogyakarta State University, Indonesia
September 15, 2016



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**4th International Conference
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**PROCEEDINGS
4th INTERNATIONAL CONFERENCE ON
VOCATIONAL EDUCATION AND TRAINING (ICVET)**

**GRADUATE PROGRAM COLABORATION WITH
ENGINEERING FACULTY, YOGYAKARTA STATE UNIVERSITY
September 15, 2016**

STRENGTHENING TVET IN ASEAN ECONOMIC COMUNITY

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Title:

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Strengthening Technical Vocational Education and Training (TVET) in ASEAN Economic Community (AEC)

Welcome to the 4th annual INTERNATIONAL CONFERENCE ON VOCATIONAL EDUCATION AND TRAINING (ICVET 2016)

This proceeding compiles all abstracts and fullpapers from the invited speakers and participants presenter in the 4th International Conference on Vocational Education and Training (ICVET) held by the Graduate School and Faculty of Engineering Yogyakarta State University on 15 September 2016 at Sheraton Mustika Hotel Yogyakarta.

ASEAN Economic Community (AEC) has prevailed at the end of 2015. Regarding this issue, it has some consequences. One of them is the open flow of products, services, and human resources across ASEAN countries. In addition, ASEAN members can freely sell their industrial products. In other words, this policy can increase the degree of products competition among those countries. The main theme of this conference is “Strengthening Technical Vocational Education and Training (TVET) in ASEAN Economic Community (AEC)”. Four sub themes are covered in this conference: 1) Establishing the policy of Quality Assurance in TVET to prepare Regional Qualification Framework, 2) The Role of TVET to Fulfill National Economic Growth and Workforce in AEC Era 3) Contribution of Informal Sectors and Skills Village in AEC, 4) Empowering Vocational Teacher Education Institution in AEC.

This conference provides the opportunity for teachers/lecturers, educational practitioners, industrial practitioners, and the others stakeholders as well to share knowledge, experiences, and research findings relevant in contributing ideas and considerations for the implementation of VET policy-making in order to strengthen Technical Vocational Education and Training (TVET) in ASEAN Economic Community.

The committee would like to thank to those who have provided assistance without which it is impossible to finish this proceeding. Further comments and suggestions on the improvement of this proceeding would be highly appreciated.

CHAIRPERSON SPEECH

Rector of Yogyakarta State University,
Prof. Dr. Pascal Marquet, University of Strasbourg, France
Tony Borkett, Theiss, Australia
Dr. Michael Grosch, Karlsruhe Institute of Technology, Germany
Prof. Soenarto, Ph.D., Yogyakarta State University, Indonesia

Distinguished guests, Participants, Ladies and Gentlements,

It gives me great pleasure to extend to you all a very warm welcome to the 4th International Conference on Vocational Education and Training (ICVET) with the theme “Strengthening Technical Vocational Education and Training (TVET) in ASEAN Economic Community (AEC)” held in Sheraton Mustika Hotel today.

Consequences of the implementation of ASEAN Economic Community which came into force in late 2015 are the open flow of products, services, and human resources across the ASEAN countries. Another consequence is there are many employment opportunities among ASEAN countries, however, when one side can enlarge employment opportunities, it can threaten less skilled human resources’ position in a particular country.

The successful fulfillment of skilled human resources is highly dependent on vocational education. Reputable vocational education certainly is supported by professional teachers. Based on this fact, the strengthening of vocational teacher education institutions is considered urgent since at this time vocational teacher education institutions have not set up teachers according to expertise program in vocational education. This conference offers an opportunity for participants to share best practices, concepts, and experiences in Strengthening TVET in AEC.

Our technical program is rich and varied with 1 keynote speaker and 4 invited speakers. 170 participants in this conference that involving 4 groups: Graduate School Students, College/University Teachers, Secondary School Teachers, Vocational High School Teachers. A total of thirty papers will be presented during the parallel session.

As a conference chair of the 4th ICVET 2016, I know that the success of the conference ultimately depends on the many people who have worked with us in planning and organizing both the technical program and supporting social arrangements. Recognition should go to the organizing committee members who have all worked extremely hard for the conference programs.

I hope that this conference will give benefit to the students, academic staffs and vocational teachers.

Thank you for your attention. I wish you a very fruitful conference.

Dr. Widarto
Chairperson of 4th ICVET 2016
Dean of Engineering Faculty
Yogyakarta State University

RECTOR YOGYAKARTA STATE UNIVERSITY WELCOME SPEECH

Prof. Dr. Intan Achmad, Directorate General of Learning and Student Affairs, Minister of Research, Technology and Higher Education, Indonesia

Prof. Dr. Pascal Marquet, University of Strasbourg, France

Tony Borkett, Theiss, Australia

Dr. Michael Grosch, Karlsruhe Institute of Technology, Germany

Prof. Soenarto, Ph.D., Yogyakarta State University, Indonesia

Distinguished guests, Participants, Ladies and Gentlemen's,

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ASEAN Economic Community (AEC) has prevailed at the end of 2015. Regarding this issue, it has some consequences. One of them is the open flow of products, services, and human resources across ASEAN countries. In addition, ASEAN members can freely sell their industrial products. In other words, this policy can increase the degree of products competition among those countries. Service industry will take part in all ASEAN countries without boundaries. Others consequences are several employment opportunities among ASEAN countries. However, when one side can enlarge employment, opportunities, it can threaten less skilled human resources position in a particular country.

To confront the invasion of foreign labor from several countries, it is necessary to put up candidates who have qualified manpower that can be accepted in other countries. In that case, it is necessary for educational institutions at national, regional, and international level to have assured quality. Also, based on the demands of the regional labor qualification, it is expected that vocational education graduates can implement quality assurance in accordance with the framework of regional labor qualification.

Vocational education aims to produce skilled human resources to meet the demands. One of the criteria of successful fulfillment of skilled human resources is depended on vocational education. Vocational education certainly is supported by professional teachers. Based on this fact, the strengthening of vocational teacher education institutions is considered urgent since at this time vocational teacher education institutions have not set up teachers according to expertise program in vocational education.

We know that the success of the conference ultimately depends on the people who have worked with us in planning and organizing both the technical program and supporting social arrangements. Recognition should go to the organizing committee members who have all worked extremely hard for the conference programs. I hope that this conference will give benefits to the students, academic staffs, industrial practices and vocational teachers.

Thank you for your attention. I wish you a very fruitful conference.

Prof. Dr. Rochmat Wahab, M.A
Rector of Yogyakarta State University

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INDONESIAN VOCATIONAL TEACHERS EDUCATION DEVELOPMENT

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ABSTRACT

Professional teachers in vocational education is one the determinants of the quality of Indonesian workers. The quality of vocational education in Indonesia is very dependent on the availability of professional teachers at all membership packages, which was held at VHS. To produce qualified teachers needed standardization of vocational teacher competence. Provision of professional vocational teachers is need education vocational teachers who apply the principles of good vocational education. FE and FETV own core business and hold the responsibility as a provider of professional vocational teachers. Vocational teacher education is an education for the world of work in vocational education. Vocational teacher education is need to uphold the principles of workplace-based education in the field of vocational education.

Keywords: vocational education, vocational teacher, vocational teacher education

I. INTRODUCTION

Developing competitiveness and collaboration capacities of Indonesian workers can be done through Technical and Vocational Education and Training (TVET). High quality TVET and relevant to the needs of the world of work becoming a determinant factor employability skills Indonesian workers. Indonesia has set important policies related to vocational education and training. This policy is changes the ratio between Vocational High Schools (VHS) and High School (HS) to 70:30. Implications of this policy are very broad in the TVET system in Indonesia. The policy causes: (1) the participation of the private community and local governments increased in the build VHS; (2) the image of vocational school as a school for the world of work is improved; (3) increased public confidence in the vocational school; (4) access to education more widely; (5) the supply of skilled labor in the number of middle-level rise; (6) changing in Indonesia labor structure; (7) vocational teachers employment increased; (8) occurs challenges preparation of pre-service and in-service vocational teachers. Changes of the ratio in some areas has reached 68:32.

Increasing the quantity of VHS has happened in the last eight years is a challenge for TVET Teachers Institute (TVET-TI) in upgrading TVET teachers

comptence. How TVET-TI build networks and cooperation with vocational education foundations and local governments? Establish partnership with business and industry? Developing entrepreneurship among VHS students? How TVET-TI mentoring the development of quality vocational education in Indonesia? How TVET-TI develop programs to providing professional vocational teachers who are ready and establish to work at VHS? How TVET-TI committed to making the arrangement functions as an institution to train and educate vocational teachers? Development of vocational teacher education is important in order to avoid vanity-sian vocational education services due to poor education and learning, bad learning outcomes, discrimination in access to vocational education in remote and outlying areas, gender, race, and lack of ability. Shifting the focus of several TVET-TI's in Indonesia from the principal function as a developer of vocational education and vocational teachers to the field of pure subject add complicated problems in the development of the workforce through vocational education in VHS.

Educational and training programs for vocational teacher training in TVET-TI be an important variable in improving the quality of vocational education at VHS. Provision of

professional vocational teachers who have the capability to understand the principles, the objectives, benefits, strategic objectives, and changes in the context of vocational education is an important issue. How TVET-TI anticipates and develops vocational teacher education programs? How TVET-TI doing research to mapping the needs of teachers kualification in all regions of Indonesia? How can the government facilitate TVET-TI in the provision of vocational teacher professional? How to develop sustainable vocational teacher professionalism? This paper discusses the development of vocational teacher education in Indonesia.

II. DISCUSSION

2.1. Vocational Teacher Education as a Profession

Indonesia through the State Constitution, namely Law No. 14 Year 2005 on Teachers and Lecturers enact that teacher is a dignified profession. Work as a teacher is a person's source of income. Meaning: Teacher including the vocational teacher is a job or profession recognized and maintained her dignity, very strategic role and functions, as well as appreciated by the nation constitutionally. The recognition of the dignity and the teaching profession vocational officially has lasted 11 years unfortunately have not followed up with the development of education system, training, assignment, and vocational retraining of the teaching profession to increasing sustainable and measurable quality.

Concrete efforts to realize the education, training, and retraining of qualified vocational teacher face the changing demands of the world of work is a necessity. Efforts developing professionalism of vocational teachers can be done through: (1) the provision of university-based teacher; (2) school-based induction of beginning teachers; (3) the professionalization of teachers based on the initiative of the institution; and (4) the professionalization of teacher based-on individual capability (Agency PSDMPK-PMP). The role of the Faculty of Engineering (FE) and the Faculty of Education Technology and Vocational (FETV) at the University of

Teacher Education Institute (TEI), the Indonesian Teachers Association (PGRI), the Association of Indonesia Technology and Vocational Education (APTEKINDO), the Association of Lecturers and Teachers of Vocational Indonesia (ADGVI) is critical.

Preparing and meeting the needs of vocational teachers as a dignified profession are an importants task Government together with the FE, FETV, APTEKINDO and ADGVI. The principal tasks of the FE and FETV is to educate and train prospective vocational teachers, develop the science of Technology and Vocational Education (TVE) and confirms that the Vocational Teacher Education (VTE) is the Vocational Education (PV). PGRI, ADGVI, APTEKINDO jointly oversee the professional development of vocational teachers. Increasing competitiveness and collaboration capacities of Indonesia workers requires the study of: (1) how does the model of vocational teacher education as vocational education transformative carried out? (2) How is the commitment and consistency of FE and FETV in developing vocational teacher education as vocational education? (3) How professional development and career vocational teacher? (4) How to model assignment vocational teacher candidates?

Development of vocational education teachers need to understand the new context of the global TVET. Technical and Vocational Education and Training (TVET) system is no longer reserved only to educate and train people to do the jobs that are already well established in the world of work, but to develop individual creativity and innovation communities to be more productive and ready to face any form of change. TVET experienced a shift from the concept of TVET for employment to TVET for employability. Even UNESCO wants TVET as an instrument for the promotion of sustainable development and prepare people become independent learners and responsible to himself (Hollander & Mar, 2009: 42). TVET for employability is education and training develop skills which enable people to gain, keep and progress within employment, including skills in the clusters of work readiness and work habits, interpersonal skills and learning, thinking and adaptability

skills. Employability is the degree of adaptability an individual demonstrates in finding and keeping a job, and updating occupational skills. Relates to portable competencies and qualifications that enhance an individual's capacity to make use of the education and training opportunities available in order to secure and retain decent work (MakKenzie & Polvere, 2009: 65).

TVET are employability, sustainable development, self-reliance and responsible clearly needs professional teachers and lecturers. Vocational teaching profession occupies a strategic position in the process of education, teaching, coaching, training, guidance, assessment, and evaluation of students in vocational education and training. Vocational teachers can develop the skills and capacity of Indonesian workers. Vocational teachers can build learning communities, building a knowledge society and to develop their personal capacity to continue to innovate and make changes (Hargreaves, 2003: 9). Professional vocational teacher is one of the determinants of the quality of vocational education. The direct impact is the quality of Indonesian workers. Vocational teaching profession requires skill, finesse, skill, commitment, idealism, responsibility and competence of certified vocational educators with quality and standardized norms. Standardization of vocational teacher competence is very urgent to do in order to improve the quality of vocational education in the country and improving the quality of labor.

2.2. Vocational Teacher Education is the Vocational Education

Vocational teacher education is education that prepares graduates to work. Vocational teacher education organized for the development of capabilities (ability and willingness) that grow on the basis of talent, interest, call the soul, idealism, commitment to improve the quality of vocational education. Vocational teacher education is vocational education for employability as educators, teachers, counselors, coaches, directors, assessors and evaluators of education and vocational training. Structuring vocational teacher education as vocational education is important to the FE

and FETV. Vocational teacher education is not education for the sake of education. Vocational teacher education is an education and training development capability oneself into professional vocational teachers who master in the principles of vocational education. FE and FETV needs to declare its commitment to make vocational teacher education as vocational education. The main task or core bussiness of FE and FETV is educate and train vocational teacher candidate.

Vocational teacher education is urgent to continue to be developed. Needs of vocational teachers is increasing in line with the policy changes in the ratio of VHS: HS 70:30. Vocational teacher education curriculum geared to achieve the objectives: (1) understand the working life as a vocational teacher in VHS; (2) develop the self capacity as a teacher to be able to perform role as educators, teachers, counselors, directors, trainers, assessors and evaluators; (3) control of learning in the classroom, laboratory, workshop, workshops, and field; (4) developing the capacity of themselves as teachers are critical in the field of vocational education; (5) transforming the practices of social work as a vocational teacher work pays off; (6) taking care of themselves as teachers of vocational capacity to work long-term; (7) develop a sustainable professionalism appropriate to the development vocational education; (8) develop their capacity according to the needs of vocational education sector; (9) practicing the capacity as teachers that work as educators, teachers, counselors, directors, trainers, assessors and evaluators with a full appreciation and concern in the community; (10) develop the capacity to contribute to the economy through vocational education.

Professional vocational teachers in the 21st century must understand the global development of the knowledge-based society. The development of a knowledge-based society requires that vocational teacher education is transformative. Vocational teacher education should be able to transform the content of education as a process undergoing changes. 21st Century vocational teacher education is education

that leads to: (1) build a cultural transformation of techno-science-socio-cultural; (2) the fulfillment of the social aspects of efficiency to get a job or have a decent, proper, good, polite (decent work); (3) increasing the capability of career positions so self-sufficient in meeting the welfare needs; (4) the mastery of skills through and meet the needs of life (life skills) private self in the family, community, nation, and state; (5) the mastery of skills for lifelong learning from real life; (6) increased innovation application of critical thinking skills, creativity, communication, and collaboration (Pirto 2011; Trilling and Fadel, 2009); (7) to improve the skills to use information and multimedia.

Vocational teachers as a catalyst for change to build a new professionalism that is: (1) promote cognitive learning up on high order thinking skills include creativity, critical thinking, collaboration, communication (Pop, 2005; Cotrell, 2005); (2) teaching in new ways that have never been taught; (3) commitment to continuous learning as a professional teacher; (4) work and study with other teachers as colleagues in educating, teaching, guiding, directing, train, assess, and evaluate students; (5) to treat other teachers as partners in learning; (6) develop collective intelligence; (7) build the capacity of teachers who are ready to change and are at risk; (8) encourage mutual trust among fellow teachers in the learning process (Hargreaves, 2003: 24); (9) live up to the meaning of the word GuRu comes from syllable Gu means darkness and Ru means light. Guru are the transformers of society from dark to light (Sudira, 2014).

The principle of professionalism of teachers contained in article 7 of Law No. 14 Year 2005, namely: (1) have the talent, interest, call the soul, and idealism; (2) a commitment to improve the quality of education, faith, piety and noble character; (3) has the academic qualifications and educational background in accordance with the task; (4) have the necessary competence in accordance with the task; (5) has the responsibility for the implementation of the tasks of professionalism; (6) earn income determined in accordance with job performance; (7) have the opportunity to

develop in a sustainable manner with the professionalism of lifelong learning; (8) have legal protection in carrying out the task of professionalism; and (9) have a professional organization that has the authority to regulate matters relating to the duties of professionalism of teachers. Being a professional vocational teacher should have the talent and the high interest, called his soul as a teacher, high ideals and committed to improving the quality of education and responsibility.

According Day (1997, 52) a key concept of professionalism in successful policies and strategies of teacher professional development depend on three aspects: (1) *self-esteem through positive rewards such as encouragement and support (without political, social, economical and organizational recognition and support, teachers' self-esteem will be in jeopardy)*, (2) *teaching skills are not enough maintaining and developing individual and collective vision comes through the career-long committed professionalism of teachers; and finally, (3) for teachers to become experts in learning requires continuing professional development.*

Teachers are not ordinary workers. Teacher jobs more than other workers. Teacher every day faced with a unique learner himself each extraordinarily diverse. Teachers must have extensive knowledge in the process of building a learning community. Teachers candidate must first take academic courses at S1. After completing academic education in S1, the vocational teacher candidates then follow the professional education of teachers. In the process of teacher professional education teacher candidates to learn and develop their personal capacity corresponding on 10 vocational education demands of the working world above. Vocational education teacher professional learning outcomes are programmed in order to qualify and criteria become professional vocational teachers. Vocational teachers have to understand the development of business and industry, have experience working in business and industry. Thus the development of professional competence of vocational teachers through professional development of vocational teachers is not enough only

carried out at the school alone. There needs to be industry practice and the practice field at the school.

Vocational teacher education quality assurance begins with the selection process of student input-based talent and interest, competency-based learning process in universities and vocational, measurable learning outcomes. Selection input of new students apply the selection of talent and interest, so that students who netted truly who has a calling and idealism as a vocational teacher. Other demand that also needs to be improved is the commitment of prospective teachers to improve the quality of education, faith, piety, and noble character.

Professional education according to John (2008, 12) is a university-based education and training with empirical knowledge, motivated by the welfare of the people who are served, committed to lifelong learning, performed independently with a high degree of quality self, has a code of ethics. In Javanese philosophy that teacher is a person who "*sugih tanpa bandha, nglurug tanpa Bala, menang tanpa ngasorake*" which means Rich lot of students not material, has the ability to enlighten, independently confront his students, and his bow without defeat. Teacher professional education including vocational teaching profession had clearly become part of vocational education. Vocational teacher education was organized to educate and train prospective vocational teachers in carrying out its duties to work as an educator, coach, tutor, teacher, chaperone students in VHS.

2.3. Vocational Teacher Education Prospek

Prospects of vocational teacher education are always evolving. Vocational education as an educational world of work is always in need of professional vocational teachers with high qualifications. Faculty of Engineering (FE) Yogyakarta State University and Padang State University since 1979 was appointed by the Indonesian government as a producer of vocational teachers through a World Bank project 1979. FE Yogyakarta State University has proven to produce excellence vocational teachers. They

are a lot of doing well in VHS. Alumni FE Yogyakarta State University successful work as teachers in vocational schools in all provinces in Indonesia, especially in the expertise areas of Engineering Technology and Information Communication Technology.

The success of the FE Yogyakarta State University graduated high quality teachers in VHS is an advantage that should continue to be developed. If FE and FETV former University Teachers' Training College no longer focus on vocational teacher education and development of educational sciences and vocational technology then almost certainly the development of vocational education in VHS future we will be in trouble. If vocational education in VHS trouble then our national education system is also facing a big problem, because the ratio of VHS: HS already towards 70:30. In 2025 our nation will be built and characterized by VHS outcomes. It takes enforcement thoughts vocational education program preparation. Enforcement of quality vocational teacher preparation program requires structuring the concept of vocational educators and the education system.

Understanding the philosophy and concept of vocational teacher education, as education for the world of work needs to continue to be socialized. Likewise, the understanding of vocational education needs to be deepened and broadened within the teacher education institutions, because not all lecturers have a background in vocational education. Education vocational teachers are no longer enough to run just as regular education because education vocational teachers require planting the values, skills, knowledge of good work, able and willing to perform or appear educating, teaching, guiding, directing, train, assess, and evaluate students in classes in various skills. Value investment in teacher must be built from scratch entering education courses.

Vocational education system also needs to be organized and enhanced in line with the changing educational context. The progress of science in giving explanation through inquiry and discovery and the development of engineering and technology in solving social and economic problems

through the design and discovery of new technologies is of particular interest as a dynamic educational context. Input and education processes developed to meet the standards of education including student selection system. Effective selection system for new students and the learning process that fully utilizes the principles of education and vocational training to make graduates fit and ready to perform the job duties as teachers and education personnel in VHS.

New student selection system for vocational teacher candidates is done through a selection of the best graduates of VHS and HS and talented as teachers and interest in becoming a candidate for all courses of expertise. Selection VHS and HS graduate gifted and interested in becoming a vocational teacher conducted across the province. A bond system also needs to be done so that after graduation they returned to their respective regions and serve as an educator at a local vocational school. This way also suppress mutations teachers among provinces so that ongoing professional development of teachers can work well at the same time can improve the quality of schools.

Vocational teacher education needs to transform education towards demand and market driven. Vocational teacher education should be more responsive and adaptable to the changes and demands of the new world of work as a vocational teacher professional. Vocational teacher education held in a dual based ie campus-based, industries-based and school-based. Vocational teacher education program organized by the contextual approach through improved communication, interaction and facilitation between the campus and the school so that students increasingly familiar with the field and her work duties. Education model used is competency-based education where teachers work profession will be maximized if the acquisition went well competence.

III. CONCLUSION

Vocational teachers are a dignified profession and constitutionally appreciated by the Indonesian nation. Development of vocational education teachers need to understand the new context of the global

TVET. TVET experienced a shift from the concept of TVET for employment to TVET for employability. Professional teachers in vocational always develop skills to gain, keep and progress within employment, including skills in the clusters of work readiness and work habits, interpersonal skills and learning, thinking and adaptability skills. Professional vocational teacher directly influence the quality of Indonesian workers. Preparation of professional vocational teachers becomes very important. Developing professionalism of vocational teachers can be done through: (1) the provision of university-based teacher; (2) school-based induction of beginning teachers; (3) the professionalization of teachers based on the initiative of the institution; and (4) the professionalization of teacher based-on individual capability

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