

ISBN : 978-602-1178-11-9

Bukittinggi, October 16-17, 2015

# PROCEEDINGS

## 3<sup>rd</sup> International Conference on Technical and Vocational Education and Training (TVET)

**Theme :**

**Technical and Vocational Education and  
Training for Sustainable Societies**



**PENERBITAN & PERCETAKAN UNP PRESS**  
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## FOREWORDS

This proceeding aims to disseminate valuable ideas and issues based on research or literature review in the field of vocational, technical and engineering studies, which have been presented in 3<sup>rd</sup> International Conference on TVET. This conference has taken place in Rocky Hotel Bukittinggi West Sumatra, October 16 and 17, 2015.

The theme of Conference focused on the perspective of technical and vocational education and training for sustainable society to face the challenges of 21<sup>st</sup> century, globalization era, and particularly Asian Economic Community. To overcome the challenges, we need the innovation and change in human resources development. Vocational and technical education and training have essential roles to change the world of education and work in order to establish sustainable society.

Undoubtedly, TVET need to enhance the quality of learning by developing various model of active learning, including learning in the workplace and entrepreneurship. Create innovation and applied engineering as well as information technology. Improvement of management and leadership in TVET Institution, and development of vocational and technical teacher education.

Many ideas and research findings have been shared and discussed in the seminar, more than 70 papers have been collected and selected through scholars, scientists, technologist, and engineers' .as well as teachers, professors, and post graduates students who participated in the conference.

Five keynote speakers have taken apart in the conference, namely Prof. D. Stein Ph.D (Ohio State University-USA), Prof. Yusuke Ono (Tottori University- Japan), and Prof. Nashruddin A. Rahim Ph.D (University of Malaya, Malaysia), and Prof. dr. Ali Gufron Ph.D (Directorate General of Human Resources Development in Higher Education-Indonesia), and Syahril Ph.D (Dean of Faculty Engineering UNP-Padang). They all have a great contribution for the success of the conference.

Finally, thank a million for all participants of the conference who supported the success of 3<sup>rd</sup> International conference on TVET 2015. and most importantly, our gratitude to all scholars who support and tolerated our mistake during the conference.

Padang, 9 Oktober 2015

**Prof. Dr. Nizwardi Jalinus, M.Ed**  
Chair of Scientific Committee

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**PROFESSIONAL DEVELOPMENT OF VOCATIONAL TEACHERS PADANG THROUGH  
ADVANCED EDUCATION AND TRAINING**

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**ABSTRACT**

This study aimed to analyze the professional development of vocational teachers through advanced education and training, namely: (1) level of education which has been completed, (2) the level of participation in professional development through education and training, and (3) professional development and training of highly needs. The study used the descriptive quantitative method. The number of population all vocational teachers Padang educators who have been certified as 434 people, as many as 146 samples selected by stratified random sampling technique. The data collected by using a questionnaire and documentation, were analyzed by using the descriptive and quantitative. Results of this research finding (1) level of education of vocational teachers Padang everything has completed an undergraduate S1 or DIV, even partially educated master S2, (2) general vocational teachers Padang active role in the development of professional such as workshops and seminars, but still less in the development of collaborative research, (3) the development of professional training that is needed is the training of vocational teachers Padang competency testing and training internships in industry, and (4) the government should take new measures to improve professional vocational teachers in order to improve learning in a vocational school in Padang area.

Keywords: professional, development, teacher, education, training, vocational

**1. INTRODUCTION**

The main problem in adult vocational education is the low quality of learning, which in turn lead to low competence of graduates. Facts and phenomena in the field indicates the high number of job seekers and unemployed graduates of vocational schools (SMK). The success of vocational education is influenced by many factors, among others: teachers, students, facilities and infrastructure, environmental education, and curriculum. Among these factors, the teacher occupies a very important position, without ignoring other supporting factors, the teacher as the subject of education largely determines the success of education itself. Jalal (2007) says that a quality education is highly dependent on the existence of qualified teachers, the teachers are professional, prosperous and dignified. Therefore, the presence of qualified teachers is an absolute requirement presence systems and practices of quality education. Furthermore, Sanjaya (2009) says the teacher is spearheading that relate directly to the students as subjects and objects of study.

The laws of the Republic of Indonesia Nomor 14 2005 on Teachers and Lecturers,

Article 1 (1) unequivocally clear that teachers are professional educators with the primary task of educating, teaching, guiding, directing, train, assess and evaluate students on the education of school-age children in formal education, primary education and secondary education. Article 1, paragraph 4 reads "professional is the work or activity carried out by a person's life and a source of income that requires expertise, skills or skills that meet certain quality standards or norms and require professional education. Then article 10 paragraph (1) states that teachers are required to master the four main pedagogic competence, social competence, personal competence and professional competence. Article 20 (a) states that the standard of work performance in implementing the tasks professionalism of teachers, teachers are obliged to plan learning, implementing the learning process air-quality as well as assess and evaluate learning outcomes. The principal task of the teacher is embodied in the learning activities is a form of teacher performance.

Law of the Republic of Indonesia Number 20 of 2003 on National Education System Article 39 paragraph (2), states that teachers are professionals in charge of

planning and implementing the learning process, assessing the results of learning, coaching and training, and conduct research and community service, especially for educators at the college. Regulation of the Minister of National Education No.41 Year 2007 on the Standard Process for Secondary Education Unit described the workload of teachers includes main activities, namely: (1) plan learning;

(2) implementing learning; (3) assess learning outcomes; (4) to guide and train the learners; (5) carry out additional tasks

## 2. RESEARCH OBJECTIVES

This study aimed to analyze the professional development of vocational teachers through advanced education and training, namely: (1) the level of education which has been completed, (2) the level of participation in professional development through education and training, and (3) the professional development and training of highly needs.

## 3. REVIEW OF LITERATURE

Vocational teachers as one of the key elements that determine the success of the implementation of vocational education is required to adjust their competence and performance in line with these changes. Professional development of teachers is one of alternative activities to improve the quality of professional skills needed in vocational school level.

Vocational teachers as the cutting edge of learning has the responsibility to develop professionalism in continuing education and training, because the teacher is now faced with rapid change, demand high standards and demands of quality improvement, so that teachers have to improve their skills and their competencies through education and training, as in katakana by By bee and Loucks-Horsley (2001) is a professional development opportunity for teachers to learn what is needed to know and what can be done to help the students to achieve the expected competencies. Vocational teachers are required to develop themselves in order to be able to adapt to changes in their duties. Thus, the professional development of teachers is one part of personnel development which can not be separated from the role of vocational schools. Finch and McGough (1982), said that the development of personnel is an important part in vocational training, especially for teachers in order to improve his skills. personnel development of teachers is a learning process that followed the

vocational education teachers to improve their knowledge and skills. Professional development is an important part of vocational training, especially for teachers in order to improve his skills.

Professional development and training for vocational teachers is influenced by many aspects, among others: the need for increased teacher competence good knowledge of theory and practice, the independence of teachers to implement professional development, support resources to implement professional development, the willingness of teachers as learners, and the ability of teachers to actualize the results of which are shown through the professional development of teacher performance and effectiveness of teachers in performing their duties.

Vocational teacher who now basically educated academically as a vocational teacher with limited industry experience. This limited industry experience, make teachers more vocational oriented text books, more academic, so it tends to learning patterns will find a more theoretical. Vocational teachers are required to have the ability not only able to teach the theory in class, but they are required also able to educate, teach, train, and guide learners in the workplace, whether in workshops, garages, laboratories, as well as guiding learners to be able to work in business and industry with a career prospective. The reforms in the field of vocational teacher education, demands changes to the character of the teacher that there had been accustomed to the pattern of leadership instruction, everything is controlled from above, teachers lose creativity. And to be able to compete in the global era, all-powerful, the era that demands a high level of adaptation to changes, require teachers who have high performance.

Professional vocational teachers on the other hand refers specifically to NBPTS (National Board for Professional Teaching Standards) issued by the US Department of Education September 2000. Dividing standardization of vocational teacher competence in different groupings, but overall there are some similarities. In philosophical context standardization document professional competence of vocational teachers interpreted the statement "What teachers should know and Be Able to do". There are five consensus must be held by professional teachers, namely: (1) teachers are committed to students and their learning, (2) teachers know the subjects they teach and how to teach Reviews those subjects to students, (3) teacher are responsible for managing and monitoring student learning, (4) teachers think systematically about Reviews their practice and learn from experience, (5) teachers are members of learning communities. Five consensus is binding on teachers to perform duties in a professional manner through four standard core competencies as may be described as follows: (1) the competence of

creating a productive learning environment, (2) competence enhance the learning of students (advancing student learning), (3) competence help students entering the workforce, and (4) the competence of improving education through professional development.

Rosenshine and Furst (1971) writes about effective teaching identified 11 indicators, namely: (1) Clarity (clarity), (2) Variability (3) Enthusiasm (4) Personal Efficiency, (5) Opportunity to Learn, (6) Accepting and Encouraging, (7) Use of Criticism (8) Use of Structure and Summary Comments, using the comments that interests of learners, (9) Question Technique (10) Probing (looking), and (11) Difficulty Level of Instructions Eleventh indicators are identified by reviewing the process and the achievement of learning outcomes of students. This instrument was further developed by Cheffers and Sullivan (2000). Adjustment with enriching professional vocational teachers grain instrument with vocational tasks in teaching at workshops, labor-thorium, studio, or when students carry out an internship or industrial practices in the workplace.

In an effort to improve the quality of vocational teachers, teachers are given the opportunity to improve professionalism through training, research, seminar, workshops and the other is one of the opportunities that teachers are motivated, so they know what the duties and responsibilities as educators. Through the training of educators are expected to improve their ability in the learning process based on experience gained from the training. The training aims to improve and development of a person to achieve better results, mastering various skills and specific techniques (Handoko, 1977). Manulang (1982) states that a person is able to work well is still required special training. Thus it is clear that through the training relevant to the task of the teacher will be able to assist teachers in implementing its duties better. Training is a systematic effort so that a person became aware or mastering job. Training is a process in order to prepare someone to do a job, so its nature is short term while development is the process of preparing a person to become more proficient in occupying certain positions.

The training can be given to a teacher depends on the skills required in the job, the qualifications of the teachers and the real problems that are and will be faced by the teacher. It can be held for training in the form of training in the work (on the job training) and training outside of work (off-the-job training). Training in work aimed to improve the mastery of a specific job within their scope. In doing teacher training is guided by an experienced teachers, or an expert instructor. Training outside of work is more training emphasizes the teaching techniques that most good, so it becomes

accustomed to the routine work, so that a teacher can always follow the development of science and new technologies, so that the teacher is always up to date knowledge or skills.

Mangkuprawira (2002) gives three major stages in the management training program, namely the assessment phase, the training phase and the evaluation phase. In the assessment phase carried out a training needs analysis of the organization, work, and individual needs. In the training phase carried out the activities of designing and selecting the training procedures, as well as the implementation of the training. The last step is the evaluation phase, at this stage of measuring training results and compare the results with the criteria. Professional development and training have a very significant influence on the effectiveness of a school, (Seyfarth, 2002). Provide professional development opportunities for teachers to gain new skills and attitudes change its behavior, which in turn will improve student achievement. Professional development often do not meet the results as expected by the implementation. Therefore, professional training providers must plan carefully every training, ranging from the selection of materials, time, place, method, until the quality of the instructors. The training must be in accordance with the needs of teachers and the right time in the midst of the teachers teach. Training is a process that is used to change the behavior of workers' organizations, which contribute to the overall mission, and the personal and professional development of the individuals involved, (Sherman, Bohlander, and Chruden, 1988).

In order to determine the training needs for teachers, it should teachers were asked to identify their development needs. The school principal and the head of the Department of Education or the part that is responsible to record on any part perbaikan. Materi teachers require in-service training program usually consists of subject matter knowledge, the process by which students learn, or teach techniques in general. Key to in crease learners' achievements is the guarantee that teachers have a good understanding of the materials and methods and strategies taught.

#### **4. RESEARCH METHODS**

This research uses descriptive quantitative method with the approach of a survey conducted to investigate the development of vocational teacher training post-certification. Population includes all



teachers SMK Padang, Sampling was done by stratified random sampling technique. Sampling was done by stratified random sampling technique. The first step items, namely the selection of four vocational high school in the cluster based on field studies of expertise, the which is a field of study skills and Engineering Technology vocational school 1 Padang was selected of, Communication and Information Technology, vocational school 8 Padang was selected, Business and Management, was Elected School 2 Padang and Arts, Crafts and Tourism vocational high school 9 Padang was selected. The second step is selecting a sample of 146 randomly from all four of the vocational teachers

Data collection tool in the form of a questionnaire consisting of two parts: (1) information Bios of teachers related to professional training required of teachers, (2) instrument teacher professional development model Likert scale adapted on the basis of the instruments developed by Cheffers & Sullivan (2000). This instrument was developed in accordance with the duties and responsibilities of the technology and vocational teachers, that are expected to describe the vocational teacher professionalism. The instrument was tested beforehand to determine its quality by respondents as many as 30 people. Reliability estimation is done using the formula Alpha of Cronbach. The estimation results show that the reliability of the reliability coefficient of 0.91. The criteria used to establish the reliability of the instrument is if the reliability coefficient greater than or equal to 0.50 (Gay, 1985).

Data analysis is descriptive analysis to explain the score obtained professional teacher compares with an average score of measurement. If the teacher professional scores above the average score measurement results, means that vocational teachers have good professionalism. On the contrary, if the vocational teacher professional score below the average score measurement results, means professional teachers in vocational unfavorable. Information, supporting data from school leaders, school committees, and learners will be referenced in the discussion of research results.

## 5. RESULTS AND DISCUSSION

### 5.1 Teacher Development Based Vocational Education Level

Based on the analysis of data, research findings show that the majority of 82.88% vocational teacher education level of Padang

has completed S1, even as much as 17.12% have been educated S2, as shown in Table 1.

Table 1: Distribution of Vocational Teacher Development Based on Level of Education

No.	level of education	Frequency	Percent (%)
1	S1 Non-educationa l	3	2.06
2	S1 Technical Education	118	80.82
3	S2 Non-educationa l	5	3.43
4	S2 Education	20	13.69
Total		146	100

When examined the state of vocational teachers based technology and vocational education, on the basis of a minimum education qualification of S1 or diploma IV Program Technical and Vocational Education, and even some have received education Master of Education, it indicates that the general vocational school teachers have met the criteria of Law No. 14 of 2005. Under the Act minimally qualified teachers S1 or Diploma IV.

This legislation has the logical consequence of the educational institutions in Indonesia including vocational high school in Padang, known as the city of education. Educational institutions, schools, and Padang City Education Department should respond favorably and promptly take anticipatory measures mainly related to the qualifications and professional competence of teachers to improve academic quality. Public recognition of an educational institution is also dependent on the qualifications and competence of the teacher profession.

Therefore the study, empowerment, and development efforts to improve teacher qualifications and competence of the teaching profession needs to be done continuously and sustainably.

Teacher professional development through continuing education is a form of coaching by providing opportunities for teachers to continue their education at a higher level. Further education can be done on their own initiative with the permission of the supervisor or may be through study of the boss. The purpose of further education according to Bafadal (2003) are to: (1) increasing the formal qualifications of teachers so that in accordance with employment regulations imposed nationally and foundations that shelter. (2) improve academic skills so that there is an increase in professional in order to improve the quality of education in schools, and (3) to cultivate the

motivation of the teachers in order to improve its performance.

## 5.2 Participation in the Forum Teacher Professional Development

Based on data analysis is found, conducted by teacher participation in professional development shown in Table 1 below.

Table 1. Participation conducted vocational school teachers in professional development

No.	form of activity	participate		not participate		Total	
		F	%	F	%	f	%
1	Workshop	131	89.73	15	10.27	146	100.00
2	conference	92	63.01	54	36.99	146	100.00
3	Qualifying self	84	57.53	62	42.47	146	100.00
4	Observations/visits to school another	71	48.63	75	51.37	146	100.00
5	participation in some form of special network	99	67.81	47	32.19	146	100.00
6	Individuals collaborative research	80	54.79	66	45.21	146	100.00
7	Observations colleagues and coaching	110	75.34	36	24.66	146	100.00

The research data in Table 1 illustrates that teacher participation in professional development is very good as seen from the tendency of vocational school teachers who follow professional development program which followed more than those not participating. Data observation in the visible field of 146 teachers approximately 131 teacher respondents (89.73%) participated in the workshop, while 15 respondents (10.27%), others do not participate in the workshop program. In the teachers' professional development activities related to conference / seminar as many as 92 respondents (63.01%) participated and the remaining 54 (36.99%) of respondents did not participate in these activities. Such data illustrate that the majority of vocational teachers have participated actively to participate in various activities of self-development both in workshops, conferences, seminars, and other development activities.

In the observation vocational school teacher professional development seen from observation or visits to other schools seen many teachers who do not participate in it. From the observation of the data as much as 84 respondents (57.53%) have not participated in the observation remaining 62 respondents (42.47%) said it had never participated in a visit to another school.

On observations of teacher participation in professional development in an effort to improve the task is seen that the activity participation in some form of special network as much as 71 vocational school teachers (48.63%) have participated remaining 75 respondents (51.37%) states not yet participating. Individuals forth in collaborative research activities as much as 99 respondents (67.81%) of teachers claimed to have

participated in these activities remaining 47 respondents (32.19%) states not yet participating. Then in an effort to improve teacher professional development activities related to peer observation and coaching as much as 80 respondents (54.79%) claimed to have participated in these activities, while the remaining 66 respondents (45.21%) reported to have never participated participate in these activities.

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Referring to the mandate of the Law of the Republic of Indonesia Number 14 Year 2005 on Teachers and Lecturers Article 20 (b) mandates that in order to carry out the task of professionalism, teachers are obliged to improve and develop the academic qualifications and competence on an ongoing basis in line with developments in science, technology, and art. With the mandate of the Act of teachers get a chance to sustainably developing

certain professionalism through training, research, writing scientific papers, and other professional activities. In other words, in order to develop the professionalism of teachers are encouraged to increase the overall competence, given that all the efforts of teachers in achieving good education quality, it depends on how teachers behave and act.

### 5.3. Professional Development and Training Vocational School Teachers Required

Based on the analysis of professional development and training required vocational school teachers can be seen in Table 3 as follows

Table3 Professional Development and Training Vocational School Teachers Required

No	Materi	The average score	The level of achievement (%)	description
1	Content and performance standard	3.42	85.62	important
2	Assessment competency test	3.61	90.41	very important
3	classroom management	3.6	90.51	very important
4	knowledge and understanding of my main subject in the field,	3.57	89.21	important
5	Knowledge and understanding of instructional practice my main task in the field	3.5	87.67	important
6	information technology skills for learning	3.62	90.58	very important
7	an internship program in business and industry	3.63	90.75	very important

8	Discipline and motivation of learners and their behavior problems	3.66	91.44	very important
9	management and administration of schools	3.47	86.82	important
10	Guiding learners practicum in labor	3.43	85.79	important
11	membimbing praktik industri	3.27	81.68	important
12	The average score	3.53	88.22	important

On indicators for professional development and training in the form of what is a very important and necessary, obtained an average score of 3.53 with the total score of the achievement level of 88.22%. The average total score and the level of achievement of these figures shows that the overall score of the professional development of teachers in whatever form it is important to be implemented in improving professional development. If seen an average score for each item, it can be explained as follows:

- Item 1 teacher professional development with regard to content and performance standards obtained an average score of 3.42 and the degree of achievement of 85.62%, this figure is at an important category.
- Item 2 that is related to the professional development of teachers in assessment practice learners have an average score of 3.61 and the degree of achievement of 90.41%, this figure is at a very important category.
- Item 3 relating to the professional development of teachers in classroom management has an average score of 3.6 and the level of achievement of 90.51%, this figure is at a very important category.
- Item 4 of the professional development of teachers in the knowledge and understanding of the main subject in the field had an average score of 3.57 and 89.21% level of achievement in the category are very important.
- Item 5 in respect of the professional development of teachers in

- understanding the practice had an average score of 3.5 and a rate of 87.67% achievement scores are included in the essential category.
- Item 6 on the professional development of teachers in the learning information technology skills to have an average score of 3.62 and 90.58% level of achievement scores are included in the category of extremely important.
- Item 7 on the professional development of teachers in the internship program in the industry to have an average score of 3.63 and 90.75% level of achievement scores are included in the essential category.
- Item 8 of the professional development of teachers in the discipline and motivation of the students have an average score of 3.66 and 91.44% level of achievement scores are included in the category of extremely important.
- Item 9 relating to the professional development of teachers in the management and administration of schools have an average score of 3.47 and 86.82% level of achievement scores are included in the essential category.
- Item 10 relates to the professional development of teachers in guiding students in practice to have an average score of 3.43 and the degree of achievement of 85.79%, this figure is at an important category.
- Item 11 on making professional development of teachers in guiding the industry working practices have an average score of 3.27 and 81.68% level of achievement is at an important category.

The meaning of each item is reflected teachers' professional development related to the duties and responsibilities as a professional educator, generally they stated that the task is categorized important and very important, because it continues development programs for teachers are in dispensable even though they have gone through a certification program. To get professional predicated teachers with a dequatemastery of competencies, required training is done in a sustainable and comprehensive. This means, that these efforts must be done right on target, the teacher requires. Efforts are being made must be interrelated to one aspect to the other on an on going basis as an on going effort. In addition, these efforts should also be done completely and thoroughly, covering all aspects of

competence. The responsibility of the school to develop the competence of teachers set out in Article 53 of the National Education Standards, that every education units are managed on the basis of annual work plan which is the detailed elaboration of the medium-term work plan which includes the education unit 4 year period. Among the annual work plan is a program to improve the quality of teachers and that includes at least the type, duration, participants, and organizers of the program. How to shape the school's responsibility to develop the competence of teachers, so that gradually he reached the level of competent or professional teachers, because teachers require adequate facilities and environment in order to improve their competence. In this case the moral motivation of the principal alone is not enough, but it needs concrete measures and policies concerning training programs related to the competence and the needs of teachers, as well as the demands of government and stakeholders on the quality of teachers and education today.

## 6. CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Conclusions

Based on the results of research and discussion, can be summarized as follows: (1) professional development of teachers of technology and vocational generally have qualified education (S1) or D IV in accordance with the Act of teachers and professors, even quite a lot that has been qualified S2, (2 ) majority of technology teacher vocational active role in professional development in the form of workshops, seminars, and still less in visits to other schools and the development of collaborative research, and (3) the development of professional training in any form is deemed important and needed by vocational teachers Padang. Even so urgent and much needed is training students in learning assessment practice (competency test), following the apprentice ship program in industrial and information technology skills for learning.

### 6.2 Recommendations

Along with the conclusion, put forward suggestions as follows: (1) leadership vocational schools need to create a map of the quality of teachers of technology and vocational, to picture the strengths and shortcomings of each teacher can be in the inventory, as the material for staff development is continuous, (2) vocational school teachers should always strive to improve their professional ongoing basis, learning to recognize themselves, understand the shortcomings, and share with colleagues other teachers when there is an excess, trying to continue to develop themselves, to understand the learning process of learners, accept criticism, do what is best for the students in the class, as well as in

workshops, (3) education authorities should provide facilities for vocational teachers who will carry out an internship in the industry, including the development of information technology, and (4) agency quality assurance educator (LPMP) as the organizers of the development and training of teachers, in order to develop training to change teacher behavior, more open to criticism of students, more creative, innovative and adaptive to change

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