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1

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# Competence Assessment for Vocational School Students Based on Business and Industry Chamber to Improve Graduate Entrepreneurship

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11

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**Abstract.** Vocational school's skill competence assessment is an important phase to complete learning process at vocational school. For vocational school this phase should be designed and implemented not only to measure learning objective target, but also to provide entrepreneurship experience for the graduates. Therefore competence assessment implementation should be done comprehensively in cooperation with Business and Industry Chamber. The implementation of skill competence aspect covering materials, methods, strategies, tools and assessors, need to be designed and optimized with respect to vocational school together with Business and Industry Chamber. This aims to measure the learning objective target and produce improved entrepreneurship graduates. 4M-S strategy in students' skill competence assessment could be done to ensure that the material, method, tool and assessor have been well designed and implemented in both institutions: vocational school and Business and Industry Chamber to improve entrepreneurship graduates.

## INTRODUCTION

Stakeholders, Business and Industry chamber have to acknowledge the implementation of student skill competence assessment so that they could provide accurate opportunities or job career for vocational school graduates. So far, the partnership between vocational school and industry mainly expose students' technical skill (hard competence) instead of entrepreneur competence (soft skill). Vocational school graduates who become job seekers are tested for their technical competence only. For that reason, it is necessary to re-evaluate the partnership framework between vocational school and industry by giving more comprehensive concern not only in terms of technicality but also in the skill of entrepreneurship. Some important elements that must be integrated in competence measurement are method or strategy, material, assessor, tools and evaluation system. Those elements should be redesigned and implemented in order to give additional value for the graduates.

Usually, skill competence implementation methods are based on the minister rule, but common implemented methods are using project based learning or problem based learning model. Whatever the method is, it has to be able to improve and evaluate entrepreneurship attitude or competence. Vocational school and industry should work together to conceptualize students competence assessment materials that at least cover (a) technical aspect that is in-line with national education standard and national work competence standard or known as KKNI; (b) entrepreneur aspects of each vocational school characteristics.

Instructor or assessor is one of main aspects in vocational skill competence assessment. There are two kinds of assessors from business and industry chamber and from vocational school. Both assessors must have sufficient competences, entrepreneur skill and knowledge. Tools and facilities are further aspect that needs to be concerned in skill competence implementation. Both tools and facilities should support students' technical competence achievement and entrepreneur skill development. In this case, it is necessary to have the right assessors who master in both technical (hard skill) and entrepreneurial (soft skill) competence in order to assess the students. Five components of assessment need to be organized in simultaneously with business and industry chamber through a strategy called 4M-S. This strategy organizes and manages method, man, material, machine, as well as soft-skills

3

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assessment (4M-S). This strategy also works well in assessing students' technical and entrepreneurial attitudes (soft skills).

## PURPOSES AND BENEFITS

The specific purposes of this study were:

1. To design vocational school student competence based on industry needs for the entrepreneurship graduates development.
2. To find out the implementation strategies of the vocational school student competence based on industry needs.

## METHOD

This research used **Research and Development**. This relates to the common **goal of research** which is to produce an implementation strategy based on the student competence assessment for the development of entrepreneurship graduates. Thus, this study investigated components on education system, through the development and validation. Educational research and development (R & D) is a process used to develop and validate educational products. The education products are described further on this paper which include not only material (textbooks and instructional films) but also to the development of processes and procedures, such as the development of teaching method, instrument or learning device development, and a method to organize learning. The ten stages of the research and development simplified into three stages: a preliminary study, development, and validation [1] as described in the following flowchart:

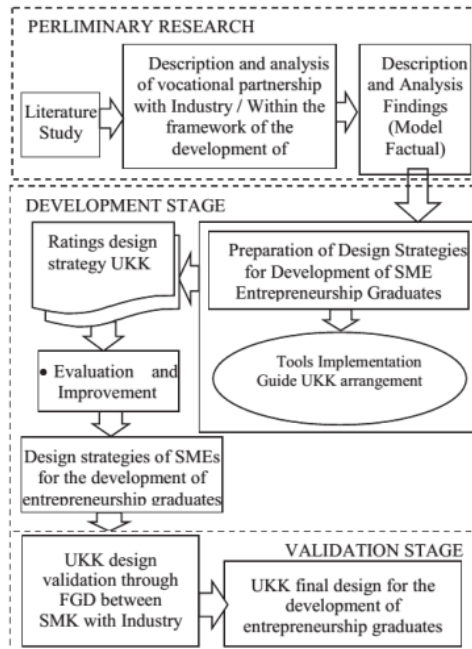


FIGURE 1. Research flowchart

## RESULT AND DISCUSSION

### Implementation Strategy Design of Skill Competence Assessment

Implementation strategies in the design of skill competence assessment for vocational school cover three aspects, they are: (a) competence assessment implementation purposes, (b) competence assessment strategy (4M-s) and (c) competence assessment follow up. The proposed design is evaluated and judged by the stakeholders concerning its linearity of the stakeholders' needs.

#### *Partnership Purposes in Skill Competence Assessment Implementation (UKK)*

Skill Competence Assessment Implementation (UKK), for vocational schools, has strong correlation with stakeholders' needs especially in Business and Industry Chamber field. It is because the result of Skill Competence Assessment Implementation must be acknowledged by the stakeholders (Business and Industry Chamber in this case) so that at the end of learning, vocational school graduates could have more access and more opportunities to the right work field.

So far, the partnership between vocational school and industry mainly expose students' technical skill (hard competence) instead of entrepreneur competence (soft skill). Vocational school graduates who become job seekers are tested for their technical competence only. For that reason, it is necessary to re-evaluate the partnership framework between vocational school and industry by giving more comprehensive concern not only in terms of technicality but also in the skill of entrepreneurship. Some important elements that must be integrated in competence measurement are method or strategy, material, assessor, tools and evaluation system. Those elements should be redesigned and implemented in order to give additional value for the graduates. Main components of skill competence assessment such as materials, strategies and assessors need to be re-designed then to be implemented to gain entrepreneurship graduates' additional values.

#### *Strategies in Skill Competence Assessment Implementation (UKK)*

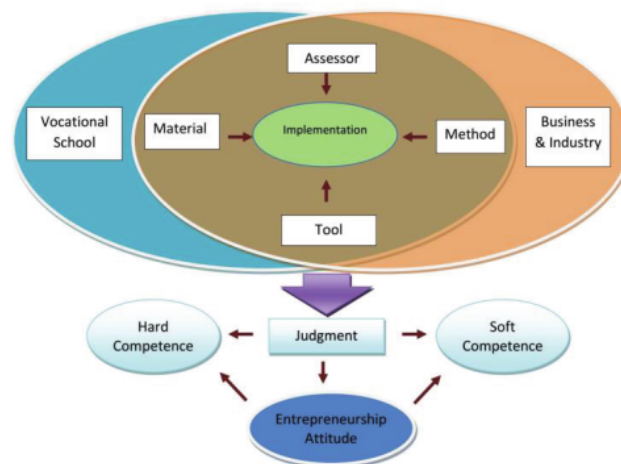


FIGURE 2. Entrepreneurship vocational school management model [6]

*4M-S Strategy works based on the following procedures:*

1. Vocational Schools (SMK) synergistically work with Business and Industry Chamber to: (a) structure the materials used in skill competence assessment; (b) select and decide assessor (*man*); (c) develop the right methods (*methods*); and (d) provide tools, facilities or machines according to the skill program which is

- being assessed (*machines*). The fourth components are implemented to assess technical competence as well as oriented to develop entrepreneurship competence of the graduates (*students*).
2. Vocational Schools (SMK) synergistically work with Business and Industry Chamber to conduct skill competence assessment (UKK) according to the agreed time and schedule
  3. Vocational Schools (SMK) conduct skill competence assessment (UKK) that gives concern to hard competence and entrepreneurial competence (soft competence).

*The Development of Skill Competence Assessment Implementation (UKK)*

Skill competence assessment materials have to be developed collaboratively and synergistically between Vocational Schools (SMK) and Business and Industry Chamber by enclosing: (a) technical aspects based on national education standard (BSNP) and national employment standard competence (SKKNI); (b) entrepreneurship aspects which become each schools characteristics. Each Vocational School could have different entrepreneurship aspects to be developed. It is according to each characteristics or strength in each school. It may also depend on the kind of developed skill program, school potential and how the school builds network with Business and Industry Chamber.

*The Implementation of Skill Competence Assessment (UKK)*

Generally, the implementation of Skill Competence Assessment is appointed based on Ministry provision. However, the model used in the assessment is mostly project-based learning or problem-based learning. Any models or strategies applied in Skill Competence Assessment have to focus on the result, develop and assess competence and entrepreneurship attitude.

*Instructor/Assessor*

Instructor or assessor, who examines competence assessment, is the most important component in Skill Competence Assessment in Vocational School. Moreover, the assessor must have proper experience or expertise dealing with entrepreneurship. For this reason, a Vocational School has to select assessor carefully together with Business and Industry Chamber by considering the exact needs of each skill program which is available in the school. There are two types of assessor. An assessor can be from Business and Industry Chamber or from the school and who has experience in productive program conducted in the school. Each of them must have entrepreneurship skill and orientation.

*Instrument*

Instrument is selected because it can support technical competence achievement and it can inspire students to establish entrepreneurship. For instance, electro plating, can be used as an instrument in skill competence assessment especially technical competence or hard competence. This instrument can also be introduced to students as an idea to develop entrepreneurship attitude.

**TABLE 1.** The Entrepreneurship Attitude Score

No	Entrepreneurship Attitude	Score			
		4	3	2	1
1	confident				
2	task and result-oriented				
3	risk taker				
4	leadership				
5	originality				
6	future-oriented				
7	Honest and persistent				
8	discipline				
9	High commitment				
10	Creative and innovative				
11	independent				
12	reliable				

Score Remarks: 4 = very good; 3 = good; 2 = not that good; 1 = bad.



### Competence Assessment Follow Up Certification

Certificate and result certification of UKK can be issued according to two purposes; internal and external purposes. For internal purpose, the certificate is aimed to fulfill the students and the school importance to accomplish learning. Meanwhile, for external purpose, the certificate is aimed to gain stakeholders and Business and Industry Chamber's recognition. Therefore, the certificate is signed by two parties from the school (SMK) and Business and Industry Chamber.

#### *The Recognition of Stakeholder or Business and Industry Chamber*

As the follow up action of skill competence assessment, it is necessary to obtain a recognition from stakeholders or Business and Industry Chamber. So that the students who have taken skill competence assessment (UKK) will be recognized by Business and Industry Chamber and they can directly access work field. Honestly, this concept is not easy, since Business and Industry Chamber has its own considerations in accepting or selecting students but the school, at the other side, has to pass UKK test takers as many as possible.

Through skill competence assessment which develops entrepreneurship attitude, hopefully the graduates are not only job-oriented but also they have an attitude to develop entrepreneurship and create job opportunities for others as well as entrepreneurship attitudes as discussed above. UKK design grading covers three aspects: (a) the purpose of partnership in UKK; (b) the implementation of UKK; and (c) UKK follow up, and it is drafted as need analysis of skill competence assessment in SMK.

### The Result of Need Analysis

A questionnaire had distributed to 30 respondents (the headmaster and productive teachers) to describe the need analysis of skill competence assessment in SMK, which is based on Business and Industry Chamber to develop entrepreneurship for the graduates. The respondents were asked to give score toward the design of skill competence assessment implementation based on three aspects: (a) the partnership purpose with Business and Industry Chamber in the implementation of skill competence assessment, (b) strategies in skill competence assessment implementation, and (c) the follow up action for skill competence assessment.

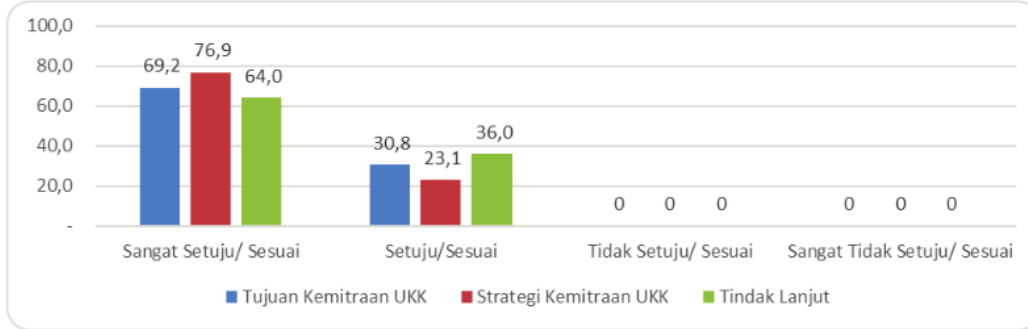
#### *UKK Design Appropriateness*

UKK design appropriateness means the design has to support and to be suitable to the school needs and Business and Industry Chamber as well. The appropriateness is in terms of purpose, implementation strategy, and result follow up of UKK. There were three skill programs were examined in terms of appropriateness. They were Technology and Engineering, Business and Management, and Tourism. The result is shown in Table 1 below.

TABLE 2. The Appropriateness of Each Design Aspect of UKK at All Skill Programs

UKK Aspects	Very Appropriate	Appropriate	Un-Appropriate	Un-Appropriate At All
Partnership Purpose in UKK	69,2	30,8	0	0
UKK Implementation Strategy	76,9	23,1	0	0
UKK Follow Up	64,0	36,0	0	0
Average	70,03	29,97	0	0

Based on table 1 and graph 1 above, the score of UKK design at purpose aspect is 69,2 % very appropriate; and 30,8% appropriate. Meanwhile, the implementation strategy of the design is: 76,9% very appropriate; 23,1% appropriate; and follow up aspect is 64,0% very appropriate; and 36,0% appropriate. In average, the overall design aspect has 70,03% very appropriate; and 29,97% appropriate. Based on the respondents' score, it can be assumed that UKK design has high appropriateness toward SMK and Business and Industry Chamber need.

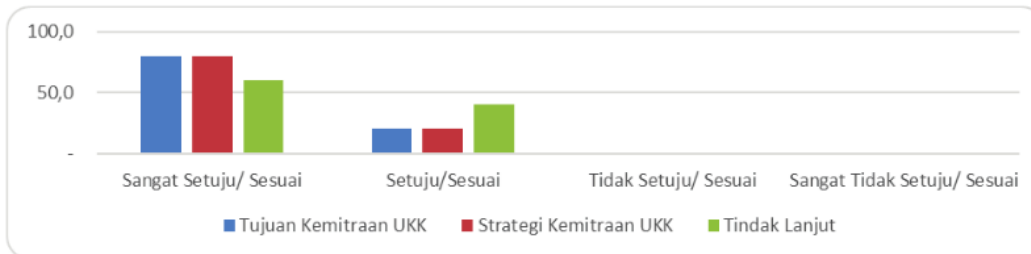


**FIGURE 3.** Appropriateness in Each Design Aspect of UKK at All Skill Programs

The following is the score for each skill program:

**TABLE 3.** The Appropriateness of Each Design Aspect of UKK in Technology and Engineering Skill Program

UKK Aspects	Very Appropriate	Appropriate	Un-Appropriate	Un-Appropriate At All
Partnership Purpose in UKK	80,0	20,0	0	0
UKK Implementation Strategy	80,0	20,0	0	0
UKK Follow Up	60,0	40,0	0	0
Average	73,3	26,7	0	0



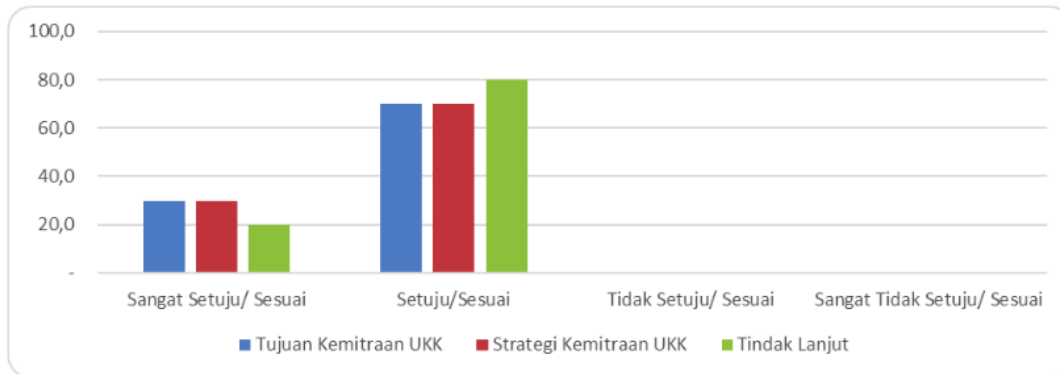
**FIGURE 4.** The Appropriateness of Each Design Aspect of UKK in Technology and Engineering Skill Program

*Business and Management Skill Program :*

**TABLE 4.** The Appropriateness of Each Design Aspect of UKK in Business and Management Skill Program

UKK Aspects	Very Appropriate	Appropriate	Un-Appropriate	Un-Appropriate At All
Partnership Purpose in UKK	30,0	70,0	0	0
UKK Implementation Strategy	30,0	70,0	0	0
UKK Follow Up	20,0	80,0	0	0
Average	26,7	63,3	0	0



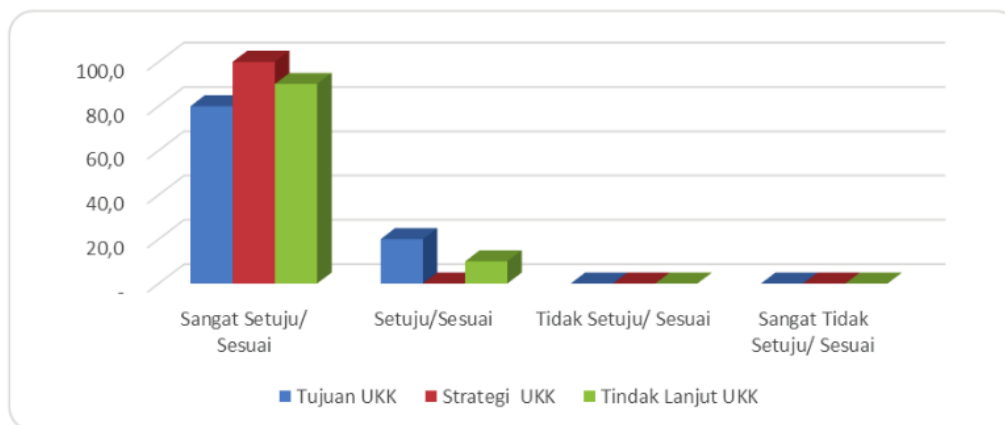


**FIGURE 5.** The Appropriateness of Each Design Aspect of UKK in Business and Management Skill Program

*Tourism Skill Program*

**TABLE 5.** The Appropriateness of Each Design Aspect of UKK in Tourism Skill Program

UKK Aspects	Very Appropriate	Appropriate	Un-Appropriate	Un-Appropriate At All
Partnership Purpose in UKK	80,0	20,0	0	0
UKK Implementation Strategy	100,0	00,0	0	0
UKK Follow Up	90,0	10,0	0	0
Average	90,0	10,0	0	0



**FIGURE 6.** The Appropriateness of Each Design Aspect of UKK in Tourism Skill Program

Based on table (2, 3, and 4) and graph (2, 3, and 4) it can be seen that the appropriateness of UKK design at each skill program is described as the following: in technology and engineering skill program: 80,0 % is very appropriate; 20,0% is appropriate; and in implementation strategy aspect: 80,0% is very appropriate; 20,0% is appropriate; and at follow up aspect: 40,0% is very appropriate; and 60,0% is appropriate. In business and

management skill program, at purpose aspect: 30,0 % is very appropriate; 70,0% is appropriate; and at implementation strategy aspect: 30,0% is very appropriate; 70,0% is appropriate; and follow up aspect: 40,0% is very appropriate; and 60,0% is appropriate. In tourism skill program, at purpose aspect: 80,0% is very appropriate; 20,0% is appropriate; and at implementation strategy aspect: 100,0% is very appropriate; 0,0% is appropriate; and at follow up aspect: 90,0% is very appropriate; and 10,0% is appropriate.

### *UKK Design Appropriateness*

The result of UKK design grading, in the overall skill program as well as each skill program (Technology and Engineering, Business and Management, and Tourism), thus was validated through focus group discussion (FGD) involving experts, the school managers (headmaster and productive teachers) also Business and Industry side. FGD result stated that UKK design has high appropriateness and it is proper to be applied as one of strategies in skill competence assessment implementation of Vocational School students to develop entrepreneurship attitude of the graduates using 4M-S strategy.

### **Discussion**

The implementation of skill competence assessment of SMK students becomes an important phase especially for evaluating the education and training outcome that have been accomplished according to the students' skill. Practically, skill competence assessment mostly emphasizes technical competence (*hard competence*), while soft competence like entrepreneurship attitude has not been developed yet specifically. To develop entrepreneurship attitude through skill competence assessment, it is necessary to develop implementation strategies. It is to measure technical competence as well as develop and evaluate entrepreneurship attitude. The development of vocational school students' entrepreneurship attitude has become the un-bargainable need since there is an increasing number of SMK graduates as job seekers. Maritz, Alex, and Borwn, Chris (2013) found that entrepreneurship education and learning can be developed through the strengthening of entrepreneurship educational programme (EEP) using *entrepreneurial self-efficacy* (ESE). They explained that the implementation of entrepreneurship education and learning could improve students confidence index scale (*entrepreneurial self-efficacy/ESE*). Basically, some measurement and evaluation methods of entrepreneurship learning result should be developed, one of them is through *entrepreneurial self-efficacy* (ESE).

Vocational education combines vocational skills and interpersonal skills. This also has strong correlation with career development of the graduates. The vocational education has something to do with career development, therefore the students need to be equipped with vocational skills and interpersonal skills appropriately. The development of entrepreneurship attitude for SMK graduates could not stand by itself. This involves some sides especially in business and industry field. Entrepreneurship is an attitude that promotes creativity so that one could be active, useful, innovative and sensitive. Entrepreneurship character is influenced by one's skill, ability or competence [3]. Laine, Kati, Hamalainen, Raija (2015) claimed that entrepreneurial attitude must be empowered and vocational school is the right institution since it is conducted to meet the industry's demand and job market. The learning model and collaborative judgment that supports entrepreneurial attitude in vocational school [4]. The main concern in the development of students' entrepreneurship attitude is the implementation strategy of assessment which is designed through UKK. Empirically, skill competence assessment is to develop entrepreneurship and it needs to be done collaboratively between schools and business and industry chamber through 4M-S strategy.

### **CONSLUSION**

Both professional and academia must give serious attention and concern to the implementation strategy of skill competence assessment for vocational students due to the following consideration: (1) Substantially vocational school is the right community to develop its graduates' entrepreneurial competency; (2) factually most graduates prefer to find a job instead of becoming an entrepreneur. Therefore, it is important to develop learning strategy and competence skill that focuses on graduate entrepreneurial competence. One of the developed strategies is 4M-S. This is an alternate strategy for vocational school in order to develop the graduate entrepreneurial competence.

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**REFERENCES**

1. Borg, Walter R. and Gall, Meredith D. 1993. *Educational Research: An Introduction*. New York and London; Longman.
2. Kemendiknas. 2010. *Pengembangan Pendidikan Kewirausahaan. (Bahan Bimtek Pengembangan Kewirausahaan)*. Jakarta: Pusat Kurikulum dan Perbukuan. Kemendiknas.
3. Kraebber, Sharon L, and Greean, James P. 2012. *The Relationship between Self-Concept and Self-Ratings of Generalizable Skills of Students in Postsecondary Career and Technical Programs*. *Journal of Career and Technical Education*. Volume 27, No.1. Pages 22-39.
4. Laine, Kati, and Hamlainen, Raija. 2015. *Collaborative business planning in initial vocational education and training*. *Journal of Vocational Education & Training*. Volume 67 Issue 4. Pages 497-514.
5. Maritz, Alex, and Borwn, Chris. 2013. *Enhancing entrepreneurial self-efficacy through vocational entrepreneurship education programmes*. *Journal of Vocational Education & Training*. Volume 62 Issue 4. Pages 543-559.
6. Samsudi. 2011. *Kesiapan SMK dalam Pelaksanaan Uji Kompetensi Produktif dalam Rangka Ujian Nasional*. *Jurnal Pendidikan Vokasi*; Vol. 1; Nomor 1; Februari 2011; Asosiasi Dosen dan Guru Vokasi Indonesia (ADGVI).

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