

# Assessment Model Based on Indonesian National Work Competency Standards (SKKNI) in Vocational Education

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## ABSTRACT

The competency-based model assessment based on the Indonesian National Work Competency Standards (SKKNI) in vocational education is an approach to evaluating students' competency in a specific vocational field. SKKNI is a national standard used to measure the skills, knowledge, and attitudes required to perform a job effectively and efficiently. The competency-based model assessment based on SKKNI in vocational education is designed to provide a more objective and accurate evaluation of students' ability to perform in a specific vocational field. This model is based on specific criteria set forth in SKKNI, so that evaluation results can be consistently measured and compared. The competency-based model assessment based on SKKNI has several benefits in vocational education, such as helping students identify their strengths and weaknesses, and assisting them in improving their vocational skills. Additionally, this model can help vocational schools ensure that their curriculum and instruction are aligned with national standards. However, the competency-based model assessment based on SKKNI in vocational education also has several challenges, such as difficulties in adapting the standards to different vocational fields and the need for skilled assessors who are knowledgeable about the specific vocational field. Overall, the competency-based model assessment based on SKKNI can be an effective tool in evaluating students' competency in a specific vocational field. However, there needs to be ongoing efforts to improve and develop this model to meet the changing needs of the vocational education system.

**Keywords:** *Assessment, SKKNI, Education Vocational.*

## 1. INTRODUCTION

Presidential Regulation (Perpres) Number 68 of 2022 concerning Revitalization of Vocational Education and Vocational Training Article 7 explains that competency-based Vocational Education and Vocational Training refers to Work Competency Standards which consist of: Indonesian National Work Competency Standards (SKKNI); International Work Competency Standards; and/or Specific Work Competency Standards. The learning objectives of vocational education place more emphasis on learning skills according to the demands of the Business and Industrial World (DUDI). Vocational education learning is learning that is loaded with psychomotor skills. Psychomotor aspects can be identified by asking students to demonstrate their skills by referring to certain competency standards. The

problem so far is that the psychomotor skills assessment process carried out in vocational education in Indonesia has not used work competency standards so that the impact is that there is a disparity in the quality of graduates from vocational education institutions. The assessment is usually carried out directly by lecturers who teach lectures without being based on work competency standards so that vocational education graduates do not have sufficient skills and result in difficulties getting a job. DUDI as graduate users are dissatisfied with the quality of current vocational education graduates who have skills below the standard they want [1][2][3].

So far, the assessment conducted on vocational education in Indonesia has not prioritized aspects of psychomotor skills and even tends to be the same as general education. The assessment system used should be

a competency-based assessment model or known as a Performance Based Assessment. This model has been used in several recent studies [4][5][6]. The implementation of Performance Based Assessment requires aspects that can actually measure skills, namely by using question sheets, observation sheets, rubrics, scoring procedures, scoring techniques, and reporting methods. This system is carried out to be able to find out and determine the profile of students, so as to get recognition in the world of work. The application of this assessment model in Indonesia has not been based on work competency standards that have been regulated by the government, namely the Indonesian National Work Competency Standards (SKKNI) issued by the Ministry of Manpower. SKKNI was prepared jointly by the government and DUDI so that it reflects the skills needed by the industry.

## 2. DISCUSSION

Performance Assessment is becoming increasingly popular, because the approach used is more holistic to evaluate students. This model allows students to construct responses, capture deep understanding, problem-solving skills, social skills, and attitudes that are used in the real world, or simulated real-world situations. This model is in accordance with the characteristics of vocational learning, namely competency-based learning [7]. In assessing this model, the steps that need to be carried out by educators are: constructing, organizing, analyzing, synthesizing, interpreting, explaining, evaluating, creating. The types of assessment commonly used can be in the form of: 1) Written and oral tests, which can be in the form of assignments that are integrated into skills; 2) Self-assessment, is a formative assessment process in which students reflect on and evaluate the quality of their work, assess the extent to which they state explicit goals or criteria, identify their strengths and weaknesses at work [8]; 3) Peer assessment, is an assessment technique by asking students to state the strengths and weaknesses of their friends in various ways; 4) Journal Notes of educators inside and outside the classroom relating to attitudes and behavior that contain information from observations about the strengths and weaknesses of students; 5) Project appraisal is an evaluation activity of a task that must be completed within a certain time; 6) Portfolio assessment is basically assessing individual works for a particular task. All assignments done by students are collected and at the end of a learning program unit [9]; and 7) Performance based assessment is a process of collecting data by means of systematic observation to make decisions about individuals. The use of performance appraisal or performance is to assess competence which aims to develop the potential of students [10].

### 2.1 Performance Assessment Based on SKKNI

Performance assessment is the most relevant assessment model used in assessing the psychomotor skills of vocational education students. Before conducting an assessment, instrument development is carried out. The instruments developed should not only assess individual characteristics, but try to find links between teaching objectives, students' abilities, and the needs of the business world [11]. In the context of performance appraisal, it is necessary to develop a rubric that is used as the basis for measurement. The design of the scoring rubric requires specification of the criteria for assessing the quality of performance and the choice of assessment procedures [12]. In the implementation of authentic assessment, a rater is required who has a high commitment in conducting the assessment so that the assessment can be carried out consistently to describe the abilities and skills of students. to achieve a high level of inter-rater reliability it is necessary to design and implement a rubric [13]. Rubrics are useful for matching student performance against a set of criteria to determine the extent to which student performance meets the criteria for the task. In this study the criteria used in the development of the assessment instrument were the Indonesian National Work Competency Standards (SKKNI).

SKKNI is a formulation of work ability that includes aspects of knowledge, skills and/or expertise and work attitudes that are relevant to the implementation of the assigned duties and position requirements. SKKNI was developed in consultation with related industries, to ensure compliance with workplace requirements [14]. SKKNI is mainly used to design and implement job training, conduct an assessment (assessment) of training outputs, as well as assess the current level of skills and expertise possessed by a person [15]. The application of relevant SKKNI in all learning processes has become a necessity in vocational education so that the graduates produced are in accordance with the required work competency standards. What's new in this study is the assessment model that will be developed based on the SKKNI so that the assessment process is actually able to measure students' skills or competencies.

The scoring system for skills areas refers more to benchmark reference assessments. The main feature that marks the use of benchmark reference assessment is the interpretation of scores from measurement tools that can produce descriptions of abilities or knowledge possessed by students [16]. The interpretation of test results is always compared with the standards or criteria set beforehand. Based on the characteristics of vocational education which emphasizes education that is tailored to the needs of the industrial world, the assessment applied refers to competency-based assessment. Competency-based assessment measures students' real skills based on competent and incompetent categories [17]. These

characteristics confirm that the implementation of competency-based assessments emphasizes purpose and openness as well as an assessment that refers to criteria.

## **2.2 Development of Assessment Instrument Based on SKKNI**

Before conducting an assessment, it is necessary to develop instruments. To develop instruments, for example performance instruments, teachers do not only assess individual characteristics, but try to find links between teaching objectives, students' abilities, and the needs of the business world [18]. Which states that in the context of performance appraisal or authentic assessment, it is necessary to develop a rubric that is used as a basis for measurement [19]. With the rubric, the response scales and the differences between the score levels are the same across the set items. The design of the grading rubric requires the specification of the criteria for assessing the quality of performance and the choice of grading procedures. Furthermore, the analytic rubric is more detailed and contains statements indicating the part or aspect being measured [20]. The development of an SKKNI-based assessment instrument is very important to ensure compatibility between the work competencies that have been determined and the capabilities of the workforce. The steps for developing an SKKNI-based assessment instrument carried out are as follows:

### **1) Determine the work competencies to be tested**

The first step in developing an assessment instrument is determining the work competencies to be tested. The selected work competencies must be in accordance with the standards set in the SKKNI.

### **2) Determine the type of assessment instrument**

After determining the work competencies to be tested, the next step is to determine the type of assessment instrument to be used. Several types of assessment instruments that are commonly used include written tests, practical tests, interviews, and observations.

### **3) Develop an assessment rubric**

The assessment rubric is a guide for assessing the ability of the workforce to carry out tasks in accordance with established work competency standards. The assessment rubric contains assessment criteria, rating scales, and descriptions of ability levels.

### **4) Develop test questions or practice test scenarios**

If the type of assessment instrument chosen is a written test or practical test, the next step is to develop test questions or practice test scenarios. The test questions must be designed in such a way that they can measure the ability of the workforce in accordance with the work competency standards set out in the SKKNI.

### **5) Test the assessment instrument**

After the assessment instrument has been developed, the next step is to test the assessment instrument. Testing of the assessment instrument is carried out to ensure that

the assessment instrument can accurately measure the ability of the workforce and in accordance with the established work competency standards.

### **6) Adjust and improve the assessment instrument**

If the assessment instrument does not produce the desired results during the test, then the assessment instrument must be adjusted and improved to ensure that the assessment instrument can measure the ability of the workforce accurately and in accordance with the work competency standards that have been set.

### **7) Implement assessment instruments**

Once an assessment instrument has been developed and tested, the next step is to implement the assessment instrument. Assessment instruments can be used to assess the ability of the workforce in carrying out tasks in accordance with work competency standards set out in the SKKNI.

### **8) Conduct evaluation and redevelopment**

After the assessment instrument is applied, it is necessary to evaluate the assessment instrument to determine its weaknesses and strengths. Evaluation can be done by looking at the results of the assessment, feedback from the workforce and users of the assessment instrument, and comparisons with other existing assessment instruments. If deficiencies are found or need improvement, the assessment instrument needs to be re-developed.

## **2.3 Implementation of Assessment based-on SKKNI**

Assessment in vocational education can be carried out through assignments that shape the competence of students. The learning outcomes assessment system adheres to norm reference assessment and benchmark reference assessment. Norm reference assessment is a measurement that placing individuals in their groups, comparing individual mastery to the average group mastery. While the benchmark reference assessment is a measurement learning success is based on the interpretation of behavior (performance) which is based on specific criteria or standards, meaning that the existing degree of mastery is based on the level certain things to achieve. The scoring system for skills areas refers more to benchmark reference assessments. The main features that characterize the use of benchmark reference assessments are: interpretation of scores from measurement tools that can produce descriptions of abilities or knowledge possessed by students. The interpretation of test results is always compared with predetermined standards or criteria [21]. Based on the characteristics of vocational education which emphasizes education tailored to the needs of the industrial world, the assessment applied refers to competency-based assessment [22]. Competency-based assessment measures students' real skills based on competent and incompetent categories.

These characteristics confirm that the implementation of competency-based assessments emphasizes purpose and openness as well as an assessment that refers to criteria. Before carrying out an assessment, a teacher must make a lesson plan in accordance with the needs of students in the curriculum clearly. If the plan has been well-organized and complete, then the teacher will carry out the learning according to the plan that has been arranged. In order for learning to run optimally, educators (lecturers) should apply various methods and learning media so that the material delivered by the teacher can be clearly received by students. Whether the material provided by the lecturer has been well absorbed by students, it is necessary to do an assessment. Based on the results of the assessment, a lecturer will be able to find out the shortcomings or weaknesses and obstacles experienced by students. The results of the assessment can be used as a follow-up that must be carried out by lecturers and students. Learning according to needs based on curriculum Vocational education learning places more emphasis on skills according to the field. The assessment steps carried out in vocational education which refer to authentic assessment include lesson plans, learning implementation, assessment, and feedback. The implementation of an SKKNI-based assessment can be carried out by following the following steps:

#### 1) Assessment preparation

At this stage, preparations need to be made which include selecting participants to be assessed, ensuring the availability of assessment instruments, and ensuring the environment and facilities required for conducting the assessment.

#### 2) Introduction of assessment instruments

At this stage, participants are given an introduction to the assessment instrument to be used. This includes an explanation of the types of assessment instruments used, how to answer questions or assignments, and the assessment criteria used.

#### 3) Implementation of the assessment

At this stage, participants carry out an assessment according to the type of assessment instrument used. The types of assessment instruments used can be in the form of written tests, practical tests, interviews, or observations. During the implementation of the assessment, it is necessary to ensure that participants understand the instructions and assessment procedures provided.

#### 4) Processing and analysis of assessment results

After the assessment is completed, the next step is to process and analyze the results of the assessment. The results of this assessment will show how far the participant's ability to carry out tasks in accordance with the work competency standards set out in the SKKNI.

#### 5) Determination of the results of the assessment

After the assessment results are analyzed, the next step is to determine the assessment results. The results of the assessment can be used to determine the participant's ability to carry out tasks in accordance with the work competency standards set out in the SKKNI.

#### 6) Reporting of the results of the assessment

Assessment results need to be reported clearly and transparently. This includes conveying the results of the assessment in writing or verbally to participants and other interested parties, as well as conveying information regarding participant performance objectively.

#### 7) Follow up the results of the assessment

The results of the assessment can be used to provide feedback and follow-up to participants in the context of developing work competencies. Follow-up can be in the form of training, career development, or performance improvement.

The following is an example of an SKKNI-based assessment instrument and implementation in vocational education that is used to measure students' skills and knowledge. This example is taken from SKKNI Number 361 of 2016 for the field of Industrial Automation and is used to measure competence in the PLC Pratikum course. The competency unit title used as the basis for the SKKNI is Operate a PLC with unit code C.282900.005.01. The following are the competency elements and performance criteria that must be mastered in the competency unit and used as the basis for preparing the assessment instrument.

## AUTHORS' CONTRIBUTIONS

Conceptualization: J.S., D.F.Y.; Methodology: J.S. & D.F.Y.; Validation: J.S., D.F.Y.; Formal Analysis: J.S.; Original Draft Preparation: J.S. & D.F.Y.; Writing Review and Editing: J.S. & D.F.Y.

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