

Conference Paper

# Identification of Technical Skills Achievements of Students Based on Indonesian National Qualification Framework (KKNI)

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## Abstract

The purpose of this study is to identify in detail the technical skills of students based on the Indonesian National Qualification Framework (KKNI) that consists of two aspects, namely special skills and knowledge of students. This research uses descriptive quantitative research method with independent variables that are the main observations. The treatment of this study was to observe the student practicum directly to identify the aspects of specific skills and take theoretical values in the subject area of expertise to identify issues of knowledge. The element of special abilities was detected to have 18 indicators, while the aspects of culture was determined to have 23 signs. The results of this study indicate that the average student technical skills assessment based on KKNI on the issues of unique skills and knowledge is in the very high category with a score of 97.3% for aspects of individual abilities and a score of 90.3% for aspects of expertise.

**Keywords:** technical skills, special skills, knowledge

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## 1. Introduction

Vocational education has unique characteristics because it requires special handling. These characteristics include forms of education and training that oriented towards preparing students to work in specific fields of work as assistants to technicians, technicians, or supervisors in the industry. The industrial world divides competencies into two major groups, namely employability skills and technical skills. Technical skills or technical abilities are abilities in the field of work which includes knowledge and skills. Technical skills are the leading indicators that play a role in the achievement of learning activities because this will be a benchmark for the performance of graduate competencies related to knowledge and work skills. In Indonesia, a work qualification

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framework has formed which is a formulation of work appearance that includes aspects of knowledge, skills, and expertise as well as work attitudes as an effort to achieve the competence of graduates at various levels of education. This is regulated in the Presidential Regulation of the Republic of Indonesia in 2012 concerning the Indonesian National Qualification Framework (KKNi) [1].

## 1.1. Technical skills

Maman (in Lima, 2016) technical skill is the ability to handle or solve a problem through the use of equipment, procedures, methods, and techniques in the operational process, especially about the work related to the tools that used in completing the task [2].

Technical skills are the ability to use specific knowledge, methods, and techniques in completing a particular job. Technology is a systematic and general way of working. It functions as a tool to achieve goals. The better a method and technique will be more effective in its achievement. However, no method or technique is said to be the best / used for all kinds of results [3].

A person's competence is substantially influenced by several factors, both from within (internal) and from outside (external), which consists of the following: (a) innate gifts, talents that have existed and are inherent since they were born, (b) high work motivation, (c) attitudes, motives, and values of perspective, (d) knowledge possessed from both formal and non-formal education, (e) skills or expertise possessed, and (f) the environment of their daily lives [4].

Technical Skill has a significant influence in the industrial world in the employment sector that has a related profession to support the running of industrial activity. It can say that workers are required to have competent technical skills to be able to compete in the industrial world.

## 1.2. Indonesia national qualification framework (KKNi)

The Indonesian National Qualification Framework (KKNi) is a framework of job qualification that matches, equates, integrates, the education and training sectors and work experience in the framework of providing job competence recognition in accordance with job positions in various sectors.

The Indonesian National Qualification Framework (KKNi) consists of 9 (nine) levels of qualification, starting from qualification 1 as the lowest qualification to 9th qualification as the highest qualification. Qualification level is a nationally agreed-upon level of

learning achievement (LO- Learning Outcome), based on the educational outcomes and/or training gained through formal, non- formal, informal, or work experience. The following table is a competency on level 5 for Diploma 3 based on KKNi.

TABLE 1: Qualification of KKNi.

No.	Aspect	Description of KKNi Level 5
1	Work skills	Able to complete wide-ranging work, choose appropriate methods from various options that have been or have not been standardized by analyzing the data, and able to demonstrate performance with quality and quantity measurable.
2	Knowledge	Mastering the theoretical concepts of a particular field of knowledge in general, and capable of formulating problem-solving procedural issues
3	Managerial	Able to manage working groups and prepare comprehensive written reports.
4	Attitude/character/personality	Responsible for the work itself and can be given responsibility for the achievement of the work of the group

## 2. Methods and Equipment

Data collection methods are techniques or methods that can be used by researchers to collect data. Data collection instruments used in this study were instrument questionnaires, namely a set of questions compiled to submitted to respondents and observational indicators observed directly by the researcher towards the respondents. The Research method used in this research is survey method. Survey research is one of the research approaches that are used for large and multiple data collection. Survey research is a study that collects information from a sample by asking through questionnaires or interviews describing various aspects of the population [5]. Data collection was done by distributing questionnaires in the form of instruments.

Data collection instruments used in this study are instruments compiled to measure technical skills consisting of aspects of knowledge and work skills. The element of knowledge measured through the dimensions of factual, conceptual, procedural and metacognitive awareness. Issues of work skills are regulated through the aspects of preparation of tools and materials, work processes, developing products, using time in work, presenting and summarizing the results of practicum and the ability to use IT [6]. The validity test conducted in this study is to test the validity of the instrument content (Content Validity) based on the results of expert judgment. Content validity is a validity test to ascertain whether the instrument item measures precisely the competency to be measured [7].

The population is 50 students with Simply Random Sampling techniques. Data analysis techniques in this study used descriptive statistics and variable trends. Trend categories used in this study refer to the formula developed by Sudaryono, Gaguk & Wardani [8].

TABLE 2: Variable Tendency.

Value	Description
5	Very high
4	High
3	High enough
2	Less steep
1	Low

This category is converted to suit the assessment in the study as follows:

TABLE 3: Variable Trend Category Conversion.

Assessment Category	Value Range	Percentage (%)
Very high	5	81-100%
High	4	61-80%
High enough	3	41-60%
Less steep	2	21-40%
Low	1	0-20%

### 3. Results

The results of the study are based on the data obtained in student practicum activities and work on instrument questions in practical subjects. This data is collected to identify students' technical skill achievement which consists of two aspects, namely aspects of specific knowledge and skills.

Knowledge in the field of work is the insight of students in the cognitive domain, especially in practical subjects. This aspect can identify with four dimensions, namely factual, conceptual, procedural and metacognitive dimensions. In this aspect of knowledge, there are 23 indicators which show students' achievement in the form of accumulated assessments of each question answered. From the instrument given to 50 students on the aspect of knowledge, the achievement value of each indicator obtained.

Based on the assessment of achievement in the problem instrument on the aspect of knowledge, the value of success in the dimension of factual knowledge was 94.4%, conceptual knowledge was 87.2%, procedural knowledge dimension was 88.3%, and

metacognitive knowledge dimension was 94.2%. The average achievement score of all aspects of students' knowledge was 91% and included in the very high category.

In the aspect of special skills have 18 indicators that show student achievement in the form of accumulated assessments on observations during practical activities. From the instruments given to 50 students on aspects of individual skills, the achievement scores on each indicator obtained.

From the assessment of achievement in the instrument of observation on aspects of individual skills, obtained value in the preparation of tools by 99.1%, development of materials by 99.3%, work process by 95.1%, formulating products by 94.8%, use of time by 99, 3%, presentation of results of 96.2%, summing up the results of 97.2% and using IT at 96%. The average value of all aspects of students' special skills is 97.1% and included in the very high category.

#### 4. Discussion

Work knowledge is an insight into students in the cognitive domain. This aspect consists of 4 dimensions namely factual, conceptual, procedural and metacognitive elements. This aspect of knowledge has 23 indicators that show student achievement in the form of accumulated assessments of each question answered. From the instruments given to 50 students on the aspect of knowledge, the achievement scores on each indicator obtained.

In general, the level of achievement of aspects of knowledge with factual, conceptual, procedural and metacognitive dimensions can see in the graph below:

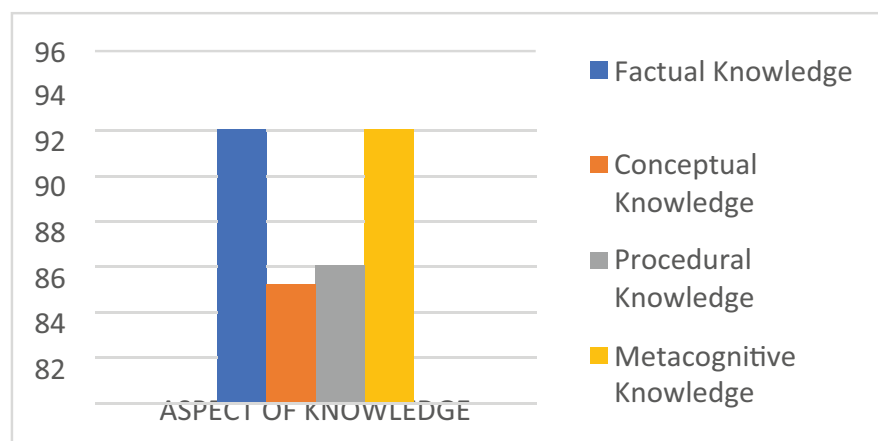


Figure 1: Achievement of student knowledge aspects.

Exceptional skills in the field of work are the ability of students in carrying out practicum starting from the preparation of tools and materials, the process of work,

product development, time use, evaluation and concluding the results of the internship. In this aspect also assessing the elements of the use of IT students in carrying out the practicum.

In the aspect of special skills have 18 indicators that show student achievement in the form of accumulated assessments on observations during the practicum activities take place. From the instruments given to 50 students on aspects of individual skills, the achievement scores on each indicator obtained. In general, the level of achievement of aspects of special skills appropriate can see in the graph below:

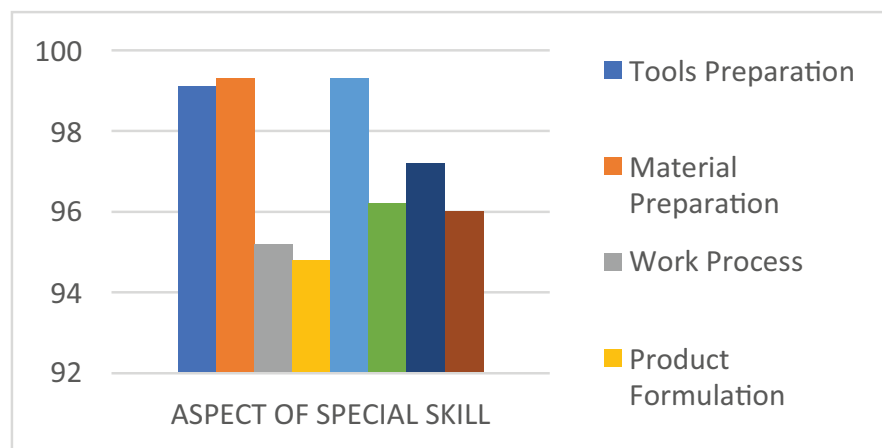


Figure 2: Student Skills Achievement.

## 5. Conclusion

Based on the results of the study obtained an average score of student achievement in each aspect. Ratings on issues of knowledge included in perfect criteria with an overall score of overall achievement dimensions are 91%. Scores on points of individual skills covered in very good with an average rating of overall achievement dimensions are 97.1%.

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## Conflict of Interest

The authors have no conflict of interest to declare.

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