

# Lecturer Perceptions of Employability Skills: Case Study in Vocational Education Diploma (VED)

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**Abstract:** Employability Skills (ES) are a key component of prospective workers to be accepted to work in industry, especially manufacturing. However, the Employability Skills in Vocational Education Diploma (ES-VED) implementation has not been identified, and no standard pattern is in line with the manufacturing industry. The purpose of the study is to explore the perceptions of the lecturers of the student internship program coordinator at VED regarding the understanding, implementation, and strategies of employability skills. Data were collected through semi-structured interviews with five VED lecturers: Yogyakarta State University, Surakarta State University, Industrial Mechanical Engineering Academy in Solo, Semarang Polytechnic, and Subang Polytechnic. Data analysis used qualitative thematic data. The study findings reveal that employability skills are identified as software, career skills, and added value. Furthermore, employability skills consist of six components, including Teamwork Skills (TWS), Problem-Solving Skills (PSS), Planning and Organizing Skills (POS), Management Skills and Occupational Health and Safety (MS-OHS), Initiative Skills (IEs), and Communication Skills (CnS). A strong relationship based on the Pearson Correlation

Coefficient (PCC) is Planning and Organizing Skills to Management Skills and Occupational Health and Safety of 0.852. Strengthening employability skills to the challenges of industry 4.0 is carried out through equalizing industry-based curricula, digitizing technology, developing human resources, and digitizing learning management.

**Keywords:** employability skills, manufacturing industry, soft skills, vocational education diploma

## 1. Introduction

Employability skills have become an interesting topic among TVET organizers as a producer of prospective workers (Supply) and job-taking industries (Demand). The enactment of the industrial revolution 4.0 changed [1]–[3] the order of all sectors without exception in the industry, which impacted the qualifications of new workers. However, the employability skills of each industry require different employability skills [4]. The main factors are the area of work and resources, as well as the culture of the work.

Employability skills become a parameter for prospective workers to describe the abilities and skills of core work, soft work, non-technical work, and generic and general work [5]. Employability skills are about what employers look for in new graduates in the form of achievements, skills, understanding, and personal attributes to achieve sustainable work

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according to one's qualification level [5]. In the interest of industry, employability skills are aimed at gaining one's potential and contributing successfully according to the strategy of the world of work. In the TVET area, there have been reforms in the implementation of temporary work, not followed by changes in learning and the formation of employability skills, especially in the vocational education diploma (VED). Some aspects that often arise and become basic needs include personal management, individual responsibility, interpersonal skills, teamwork, high-performance standards, adapting quickly, problem-solving skills, and leadership skills [6], [7]. Employability skills can be constructed and grown during the study through classroom learning activities, workshops, and an organizational and community atmosphere. However, there is no pattern of implementation, implementation, and evaluation of the implementation of employability skills in VED.

On the other hand, the VED is declared successful in carrying out the study if the work skills are achieved with those accepted in the manufacturing industry. Based on data from the Central Statistics Agency (CSA), it was analyzed that VED affected open movements by 5.87% [8]. Moreover, the number of VED graduates per year accepted in the manufacturing sector in Indonesia is not more than 10%. The manufacturing industry hires workers yearly, but job applicants do not meet the specified requirements. Of course, VED manufacturers inquire about studying the needs of the manufacturing industry. Full responsibility is the VED manager and the coordinator of the industrial internship program, who carries out learning activities and is directly involved with the industry in internship programs, collaborations, and assignments in learning.

From the HRD perspective of the manufacturing industry, the reason for not accepting prospective workers is soft skills that do not meet the requirements [9]. For them, hard skills are important but not the main component because they can be formed according to work experience, while the formation of soft skills is a long-time correlation. Dominant hard skills have less meaning if not balanced with soft skills. Hard skills that must be mastered in the manufacturing industry at the basic level are the ability to use measuring instruments, read pictures, and mastery of occupational health and safety, while the role of technology is at an advanced level [10], [11]. Considering the high unemployment and low

soft skills or employability skills, it is important to see its implementation in higher education, namely VED.

This study aims to explore the opinions of lecturers with additional duties as managers of the internship industry in implementing employability skills at VED. Considering that the manager of the industrial internship program is a lecturer who cooperation with the industry, including student internship programs, industrial visits, guest lectures, and several other programs [12], [13]. The overall purpose of this research is to answer the question, "what do they understand about employability skills, what are the components of employability skills that have been implemented in VED, how strong is the relationship between these components of employability skills, and what is the VED strategy in the future?". Finally, this study reveals the VED model in implementing employability skills, so this study can be used as an initial reference for further research on how to implement employability skills that are effective and relevant to the manufacturing industry.

## **2. Research Method**

### **2.1. Research Design**

This study uses a case study approach to the perceptions of Vocational Education Diploma (VED) lecturers in understanding, implementing, and future strategies regarding the concept of employability skills. The purpose of a case study is to obtain and examine data based on a particular context or phenomenon. Case studies describe a case in depth based on real phenomena. Creswell (2018) reveals case studies in the form of people, students, or school staff who become the education community [13]. This study uses a qualitative research methodology for data collection, analysis, and data exploration (giving meaning) [14].

### **2.2. Participants**

Participants in this study were lecturers who managed the internship program at VED on as many as five well-known campuses that held education in the field of engineering or manufacturing, including Yogyakarta State University (UNY), Sebelas Maret University (UNS), Industrial Mechanical Engineering Academy (ATMI-Solo), Semarang Polytechnic (Polines), and Subang Polytechnic (Polisub). Informants were distributed in three provinces, namely the Special Region of Yogyakarta (SRY) as

much as 1 (20%), Central Java as much as 3 (60%), and West Java as much as 1 (20%), Indonesia. In addition, the informants are divided into different academic levels, namely Diploma IV (40%) and Bachelor (60%), chosen to see differences in the implementation of employability skills. Based on work experience as a lecturer at VED between 10-25 years, I explained that the lecturer is senior and has extensive experience. Based on gender, the male is dominated by 4 (80%) and female by 1 (20%). In detail, the characteristics of the participants are presented in Table 1. Lecturers of the female gender in VED are unique and limited phenomena. This includes the reason that women working in the manufacturing sector have a high priority because of their ability to work in the aspects of thoroughness, diligence, discipline, and easier direction for quick actions that workers of the male gender do not have.

**Table 1 : Characteristics of Participants in VED**

Participant (s)	Institution	Work Experience	Gender
Putut	Yogyakarta State University (UNY)	35 Years	Male
Herman	Surakarta State University (UNS)	20 Years	Male
Fendy	Industrial Mechanical Engineering Academy (ATMI-Solo)	15 Years	Male
Abdul	Semarang Polytechnic (Polines)	25 Years	Male
Susi	Subang Polytechnic (Polisub)	10 Years	Female

**2.3.Data Collecting and Procedure**

Respondents were selected based on purposive sampling with several criteria [15], [16], including lecturers with additional tasks, namely the coordinator of the industrial internship program (internship industry). The researcher considers proximity to the industry through student internship placement activities. In addition, lecturers are responsible for providing input to VED managers regarding relevant competencies, including changes to the industry-based curriculum. In this case, the coordinator of the industrial internship program plays a role in improving the quality of graduates. The data collection technique uses semi-structured interviews using the zoom meeting application because the situation is currently in the COVID-19 pandemic.

Interviews were conducted in May 2022 with an average duration of 90 minutes. According to the agreement, additional data confirmation is done via e-mail and WhatsApp. Interviews were terminated at saturation, and data collection and analysis were deemed to have been completed.

The interview guide was developed based on three themes: understanding, implementation, and future strategies regarding employability skills. Thus, VED can be analyzed how the implementation of learning and other activities that support the formation of employability skills. In addition, it can be used as a basis for the extent to which employability skills are relevant to the manufacturing industry. The research questions are as follows: RQ1. How do you understand employability skills in VED? RQ2.1. What are the employability skills applied in VED? RQ2.2. What is the relationship between variables? RQ3. What is the future VED strategy in dealing with changes in the 4.0 industrial revolution?

**2.4. Data Analysis**

After the data was collected, it was coded and transcribed. Furthermore, the data were analyzed based on themes and concepts using inductive and thematic analysis [17]. The analysis process uses the help of the NVivo 12 program to facilitate coding, categorization, themes, and concept discovery. The stages in the analysis, firstly, the transcribed data are imported and opened in the NVivo 12 program. In the second stage, the coding process begins, namely

**Table 2 : Thematic Analysis based on Coding, Themes, and Concept**

Concept	Thema	f	Coding
Soft skills - Initiative skills (IeS)	<i>Decision-making ability</i>	25	“For example, the final project consists of hard work skills, communication skills, <b>decision-making abilities</b> , the ability to work together and so on manifested in the form of new projects.”
	<i>Work ethic toughness</i>		“How they will be able to work later, not in terms of performing skills or competencies, but in how they build communication, solve a problem. <b>From my understanding of employability skills, how strong is their work ethic?</b> ”

Noted: f is references of informants

providing attribution or nodes according to the research question. This process consists of three steps: open coding, axial coding, and generic coding. The goal is to get meaningful data. Open coding is the process of coding into a category Coding is generated descriptively, in vivo, phrases, etc., [18], [19]. Axial and selective coding are construction processes into findings based on themes and concepts. Data exploration is displayed in project maps and Cluster analysis to make it easier to describe and conclude data. The analysis team then discusses all codes, categories, themes, and concepts and possible integrations between related aspects. In this process, inductive techniques are used to address research questions. The process can be seen in Table 2.

Researcher triangulation was used to reduce data bias by involving other researchers to facilitate cross-examination of participant responses and findings . With different experiences and perspectives, it strengthens the integrity of the findings.

### 3. Findings and Discussion

This study provides important information about the employability skills applied in VED in manufacturing at the diploma and undergraduate levels. The findings reveal the limitations of the applied employability skills variable, even though it does not even measure the success of employability skills. Each campus that administers VED in the field of manufacturing varies in its perception of employability skills. Meanwhile, the manufacturing industry, as the work recipient, has the same characteristics. Of course, the VED must have the same variables or components in implementing employability skills. The following are the findings based on the perceptions of lecturers at VED:

#### 3.1. Employability skills: What do they understand?

The findings reveal that employability skills in the manufacturing sector are understood and interpreted in several categories: soft skills, career skills, and value-added. It is generally agreed as a soft skill in its formation in education. Some of the components of soft skills that are most widely discussed are Teamwork Skills (TWS); Problem-Solving Skills (PSS); Planning and Organizing Skills (POS); OHS-Management Skills (OHS-MS); Initiative Skills (Ies); and Communication Skills (CnS). Perceptions of the VED program are as follows:

I think a person's ability to work, but in short is a non-technical realm, more towards soft skills, how will they adapt in the future? How are they able to work? Not in terms of performing skills or competencies, but how they build communication and solve problems. From my understanding of employability skills, how strong is their work, their work ethic? [Fendi/ADMI Solo]

Employability skills are a career skill a person possesses in developing his career and maintaining his job in the workplace. So, there is a potential that is more needed, namely soft skills compared to hard skills, so basically, it is more career skills. [Susi/Polisub]

Meanwhile, the statement from VED at the bachelor level is as follows:

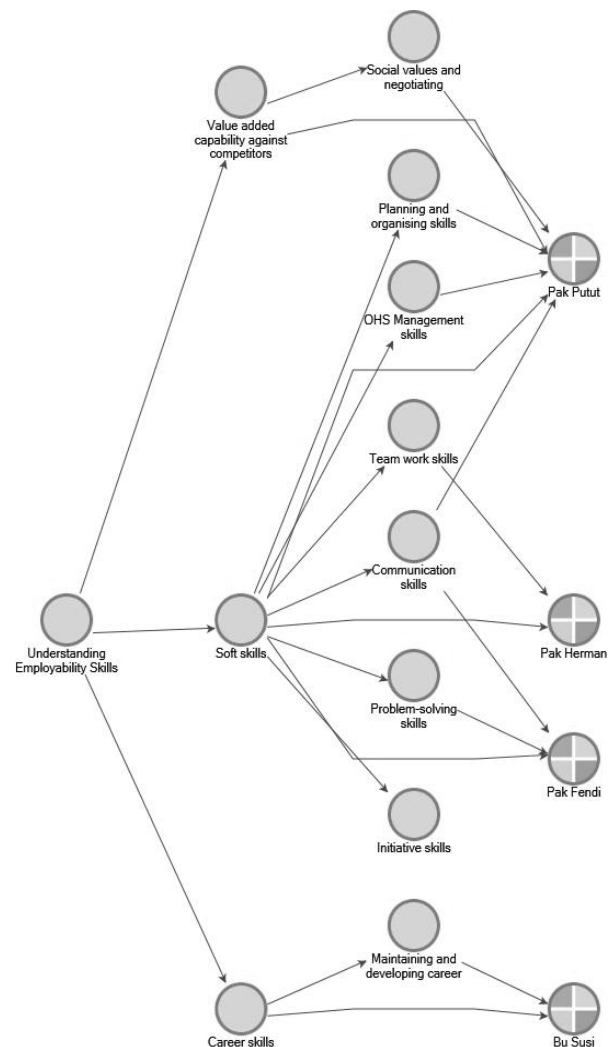


Fig. 1: Concept Map of Understanding Employability Skills in VED

His basic competence as a major is an advantage, then the added value of Communication Skills, Collaboration, Decision Making, Occupational Health, Safety, etc. Then the components must complement each other. Value-added abilities then support the basic abilities, which becomes an advantage, and he can compete to enter the world of work and be successful at work. [Putut/UNY]

There are three main categories: employability is understood soft skills and value-added for competitors and career skills, namely maintaining and developing careers (see Figure 1). In simple terms, these are basic competencies that are soft skills that also have an impact on job defense and career path development [21], [22]. It is emphasized that several researchers have revealed that employability skills are the main measure of a person's eligibility to work in the industry [23]–[25].

Basic skills are important predictors and determinants of decision-making on employability [26], [27]. The top soft skills taught in VED are communication, teamwork, problem-solving, initiative, planning and organizing, and OSH management skills. In line with the skill set [28], but negates personal skills, motivation, and personal selling.

### 3.2. Employability skills: Key skills and relationships between components

Implementing Employability Skills in VED in manufacturing shows four clusters of six components. The most dominant main cluster is communication skills (CnS); the second cluster is teamwork skills (TWS); the third cluster is problem-solving skills (PSS), planning and organizing skills (POS), and initiative skills (IeS), and the fourth cluster is OHS management skills (OHS-MS). However, OHS-MS is a core component in the manufacturing sector, permanently forming in each subject.

The application of CnS is formed through two activities, namely, activities during learning and activities of campus organizations. TWS is implemented through group learning, namely making PowerPoint presentations and completing paper-based tasks, then in individual and team models, including machine design tasks completed in groups and problem-solving groups, and finally making appropriate technology based on community needs in collaboration with MSMEs. Through the stages of

designing and submitting projects, followed by creating groups for project completion. This activity is a form of strengthening communication skills (see Figure 2). PSS was formed through courage in taking risks and solving challenges from projects given by lecturers. Meanwhile, IeS is formed through a tough work ethic and decision-making ability.

Based on the goal, employability skills are regularly carried out in learning activities to equip graduates' abilities before working [29], [30]. VED does not yet have a model, strengthening employability skills that are constructed from the beginning of education to student graduation, and there is an increase in strong employability skills.

This study explains that the variable employability skills in VED are still limited, while other skills are needed in the manufacturing sector. Other important and needed areas are self-management, technology, and learning [31], [32]. However, employability skills are relevant to the top ten skills version of the world economic forum [33]. Thus, VED is expected to develop areas that have not been predicted and the importance of emphasizing the pattern of achieving employability skills in learning and having a clear tracer.

Based on the findings, the relationship between variables or components of employability skills was measured using the Pearson Correlation Coefficient (PCC) test [34]. The measurement categories include: (1)  $>0.25 - 0.5$  moderate category, (2)  $>0.5 - 0.75$  strong category; (3)  $>0.75 - 0.99$  very strong category; and 1 perfect category. The purpose of the measurement is to see the strongest correlation

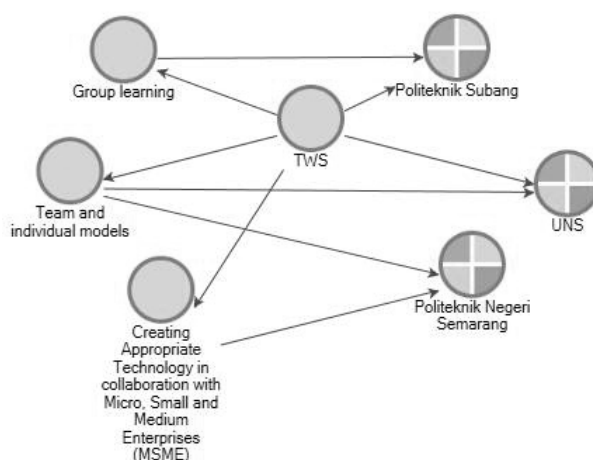
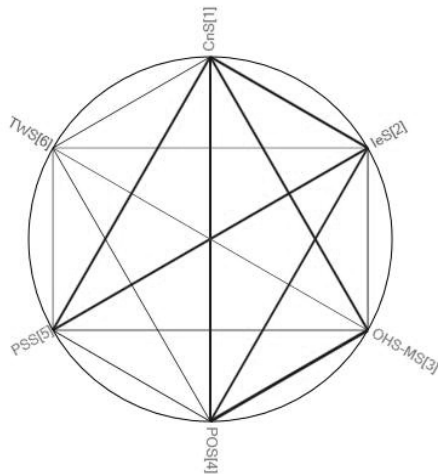


Fig. 2 : Category and Participant Relationship on Timework Skills (TWS)



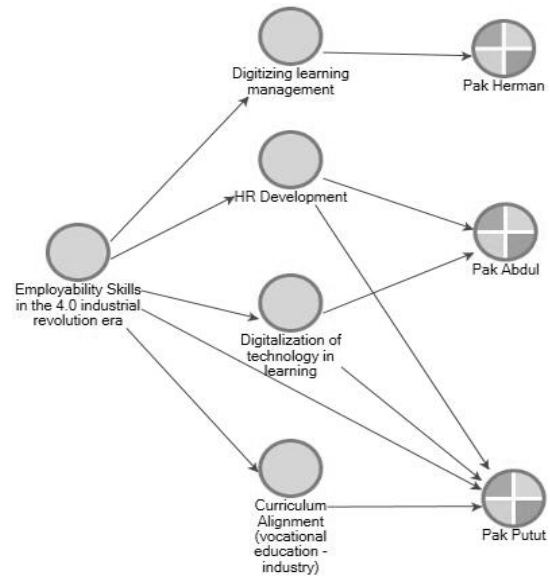
**Fig. 3 : Relationship Element Employability Skills in VED**

applied so far. The findings show that the variable POS→OHS-MS of 0.852 indicates the highest correlation among other components. Then followed by IeS→CnS of 0.67, POS→CnS of 0.66, PSS→IeS of 0.64, OHS-MS→CnS of 0.61, PSS→CnS of 0.61, POS→IeS of 0.56, PSS→POS 0.29, OHS-MS→IeS 0.28, PSS→ OHS-MS of 0.26, TWS→CnS of 0.25, TWS→POS of 0.22, TWS→PSS of 0.20, TWS→OHS-MS of 0.18, and TWS→IeS 0.12. Relationships between  $PCC > 0.50$  indicates a strong relationship or are very often implemented. Communication Skills (CnS) are often related to IeS, OHS-MS, POS, and PSS. Between the components presented in Figure 3 are distinguished by line thickness (strong relationship).

The researcher emphasizes that employability skills must be formed evenly, and it is important to study soft skills that arise from an industry perspective. However, the six skills are not strong enough for someone to develop their career path [29] in the manufacturing industry

### 3.3. Vocational Education Strategy in Strengthening Industry 4.0 Challenges

The concept of a future employability skills formation strategy (see Figure 4) was revealed by UNS, UNY, and Polines. The findings reveal that the involvement of learning using technology, resource development, and lecturers are strategies in every VED. In addition, the link and the match relationship between VED and industry must be more harmonious, namely the existence of two-way communication and mutually beneficial interests [35]. So, in simple terms,



**Fig. 4 : Employability Skills in Future Strategy**

the focus of the next improvement stage is the suitability of the curriculum for the manufacturing industry. Which is specifically meant for learning strategies, learning methods that are integrated with the formation of employability skills in the example of problem-solving or project-based learning [24], [36], [37], and collaboration between different curricula, no formulation for strengthening student employability skills has been found.

New skills can appear or simultaneously with other skills to strengthen industry 4.0. Especially in developing and advancing career paths, such as critical thinking, emotional intelligence, making the right decisions, and being flexible and adaptive.

## 4. Conclusion and Limitations

VED has implemented six areas namely planning and organizing skills, OHS management skills, teamwork skills, communication skills, problem solving skills, and initiative skills, with communication skills as the priority skill and having the dominant relationship between other elements. However, there is no measurable implementation pattern yet. A case study from the perspective of VED lecturers on work skills in manufacturing concludes that understanding work skills is defined as basic skills, soft skills, career skills, and added value. They realize that the challenges of the industrial revolution 4.0 have shifted workers' qualifications in the manufacturing sector. So, the strategy prepared is strengthening human resources (lecturers) through

self-development, inter-industry involvement in implementing learning and curriculum, and improving the learning process and technology-based infrastructure. The findings are the basis for research on employability skills in manufacturing in Indonesia. Furthermore, research on the perception of the manufacturing industry is needed, and a model for implementing employability skills in VED in measurable learning and organizational activities. However, the limitations of this study are the participants who only involve industrial internship coordinators and the need for perceptions from VED managers or leaders, lecturers, and students. Furthermore, VED needs to pay attention to the top ten skills taught during the study.

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