



Development of Employability Skills and Technopreneurship Attitudes of Vocational School Students Through Industrial Field Work Practices

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Abstract

Industrial work practices can develop employability skills and technopreneurship attitudes of Vocational School Students. This research aims to analyze: (1) the contribution of industrial field work practices to the employability skills of vocational school students, and (2) the contribution of industrial field work practices to the technopreneurship attitudes of vocational school students. This research uses a quantitative survey type approach that examines the contribution of industrial field work practices to employability skills and technopreneurship attitudes. The research was carried out at the Machining Engineering Skills Competency Vocational School in Gorontalo Province with a sample of 117 people. Data were collected using a questionnaire and the research results were analyzed using regression analysis. Based on the research results, it was concluded: (1) industrial field work practices contributed 42.3% to the employability skills of vocational school students, and (2) industrial field work practices contributed 33.6% to the technopreneurship attitudes of vocational school students. Suggestions to the school based on the research results, namely implementing partnerships with industry and ensuring that the implementation of industrial work practices runs according to guidelines so that internalization of soft skills, improvement and development of hard skills and preparation for students' entrepreneurial independence can be achieved.

Keywords: Employability Skills, Technopreneurship Attitudes, Industrial Work Practices

1. INTRODUCTION

Vocational High Schools (VHS) aim to prepare graduates to work, have an entrepreneurial spirit, are intelligent, have competitiveness so they can compete in the global market. The success of educational activities at vocational schools will be assessed by how much the graduates can be absorbed into the world of work or entrepreneurship. Ideally, vocational school graduates are ready and able to face competition in the world of work or entrepreneurship according to their competencies.

However, the fact is that quite a few vocational school graduates have difficulty finding work. BPS data shows that 1,666,493 vocational school graduates were unemployed in February 2023 and increased to 1,780,095 in August 2023, making vocational school graduates the second largest contributor to unemployment after high school graduates [1]. Looking at these facts, it is clear that this is a serious problem, because vocational school graduates should be ready for work or entrepreneurship equipped with hard skills, employability skills and technopreneurship skills.

Table 1. Open Unemployment According to Highest Education Completed (Person)

Highest Education Completed	Open Unemployment According to Highest Education Completed (Person)	
	February 2023	August 2023
Elementary school	1.218.926	979.668
Junior high school	1.445.701	1.246.932
Senior high school	2.216.001	2.514.481
Vocational high School	1.666.493	1.780.095
Academy/Diploma	191.681	171.897
University	753.732	787.973

One effort that can be made to overcome unemployment of vocational school graduates is to increase work readiness and foster an entrepreneurial spirit. Implementing an industrial field experience program is one way to increase work readiness and foster an entrepreneurial spirit in vocational school students. The industrial field experience program is an integral part of the education and training process at VHS. After participating in the industrial field experience program, students gain technical and non-technical insight and skills which can later be used as preparation for work or entrepreneurship after graduating from school.

The industry still views that vocational school graduates do not meet the standards or requirements to become employees. The obstacles that companies most often complain about in using workers from vocational school graduates are related to employability skills. Even though they have actually mastered the technical skills required for the job, due to the maturity and maturity of vocational school graduates who are not yet ready to work, this often becomes an obstacle. Industry looks for prospective employees who have qualifications and work experience formed from technical skills, employability skills, and personal attributes. Employability skills is a term that integrates a person's skills to be able to work in the work environment [2].

The skills that students acquire while studying at vocational schools are grouped into two, namely technical skills and non-technical skills. Technical skills, which are usually called hard skills, are skills in completing certain jobs. Non-technical skills or commonly called employability skills, namely skills that can be used in everyday life at work and can be transferred to various fields of work and professions, including elements of teamwork, communication skills, problem solving skills, adaptability, ability self-management [3].

VHS carry out concept learning, application and work attitude development activities to strengthen the employability of their graduates. Employability is inherent in workers who are educated, not only ready to work, but also ready to continuously update their work skills, develop and update knowledge, develop creative, critical and innovative thinking skills [4]. These various abilities are really needed by the world of work and the business world, employability is actually not only used to measure readiness to work, but is also related to readiness to become an independent worker or become an entrepreneur [5].

Developing employability skills can be carried out through introductory learning activities, affective learning, applying student-centred learning strategies, giving assignments, extracurricular and student activities, and industrial work practices [6]. Research conducted by [7] and [8] revealed that strengthening employability skills can be done through assignment-based learning activities, work practices, industry-based learning, and various cooperative learning models that are integrated with certain jobs.

Industrial work practices are also one way to develop employability skills. Many things are expected from the implementation of industrial work practices, such as increasing student competencies and skills. Work experience will provide insight into the world of work, how to behave, communicate and work with other people, and how to apply theories received at school into practice directly. Industrial work practices will bring students closer and closer to their field of work so that students will have an overview and experience of the field they will work in later [9].

In addition to preparing work-ready graduates with hard skills and employability skills, vocational school graduates must also have Technopreneurship Attitudes as preparation for entrepreneurship. Technopreneurship Attitudes is useful for preparing quality graduates who are productive, creative, innovative and effective. For this reason, efforts to strengthen entrepreneurship are needed, including technopreneurs, teacherpreneurs, schoolpreneurs [10]. Technopreneurship Attitudes is a person's ability to develop an entrepreneurial spirit by utilizing technology, both in the manufacturing and marketing processes in accordance with their respective skill competencies [11]. Technopreneurship is the self-development of an entrepreneur who uses technology to make new discoveries or innovations so that they can produce economic value [12].

Technopreneurship Attitudes of vocational school students can be developed through learning activities at school and in industry. Learning in schools is carried out through the subject of creative entrepreneurship projects, which is a learning vehicle for students through a project-based learning approach to actualize and express the competencies mastered in the activity of making products/work services in a creative and economically valuable manner according to the competency skills pursued by each student [13]. Entrepreneurship creative project subjects aim to shape and develop students' abilities in using soft-skills and hard-skills competencies through real experience, namely: (1) producing standardized products (goods/services) in accordance with the expertise program/concentration; (2) forming business/entrepreneurs in accordance with market potential and opportunities, both individually and in groups; (3) forming a professional profile of vocational school graduates based on strong and balanced soft-skills and hard-skills [14].

Technopreneurship Attitudes can also be developed through industrial field work practices. Industrial field work practice in the Independent Curriculum is a subject that must be followed by all vocational school students with the requirement of at least 6 months in 3 year vocational school programs and at least 10 months in 4 year vocational school programs. Direct learning in the world of work is a necessity for vocational school students so they can hone their competencies and strengthen their work culture. Industrial field work practical learning is carried out based on business processes and follows Standard Operating Procedures (POS) that apply in the world of work. The objectives of industrial field work practice are: (1) internalization of soft skills in the world of work; (2). application of mastered hard skills to actual work in accordance with applicable Standard Operating Procedures (POS); (3) increasing and developing hard skills in certain fields in accordance with the curriculum and needs of the world of work; and (4) preparing students' independence for entrepreneurship [15].

Based on the description above, the aim of this research is to analyze the Development of Employability Skills and Technopreneurship Attitudes of Vocational School Students Through Industrial Field Work Practices among vocational school students in Gorontalo Province. Specifically, this research aims to analyze: (1) the contribution of industrial field work practices to the Employability Skills of vocational school students in the Machining Engineering skills competency in Gorontalo Province, and (2) the contribution of industrial field work practices to the Technopreneurship Attitudes of vocational school students in the Machining Engineering skills competency in the Province Gorontalo.

2. METHODS

This research uses a quantitative survey type approach. This research is non-experimental because the researcher did not provide any treatment to the research

subjects. This research examines the contribution of industrial field work practices to Employability Skills and Technopreneurship Attitudes of vocational school students to competency in machining engineering skills in Gorontalo Province. This research was carried out at vocational schools in Gorontalo Province that provide machining engineering competencies, namely SMK Negeri 3 Gorontalo, SMK Negeri 1 Marisa, and SMK Negeri 1 Paguyaman. The sample in this study was 117 students of Class The data collection method was by questionnaire and the research results were analyzed using regression analysis.

3. RESULTS AND DISCUSSION

Before testing the hypothesis, the analysis prerequisite tests are first carried out, namely the normality test and linearity test on each variable: industrial field work practices (X), Employability Skills (Y1), and Technopreneurship Attitudes (Y2). The prerequisite analysis test was carried out with the help of SPSS 22, the results are presented as follows.

Table 2. Normality Test Results

Variable	Value Sig.	Criteria	Information
X	0.183	Sig. $\geq$ 0.05	Normally Distributed
Y ₁	0.200	Sig. $\geq$ 0.05	Normally Distributed
Y ₂	0.200	Sig. $\geq$ 0.05	Normally Distributed

Table 3. Linearity Test Results

Variable	Value Sig.	Criteria	Information
X-Y1	0,640	Sig. $\geq$ 0.05	Linear
X-Y2	0,720	Sig. $\geq$ 0.05	Linear

After the analysis prerequisites have been tested and the results are met, then the hypothesis test is carried out. The first hypothesis of this research is: there is a contribution of industrial field work practices (X) to Employability Skills (Y1). The first hypothesis testing uses simple regression analysis with the help of SPSS version 22.0. The results of the hypothesis test are as follows.

Table 4. Hypothesis Test Results X-Y1

Variable	Value r	Value	Nilai t	Koef.	Konst.
X-Y ₁	0,650	0,423	0,000	0,490	38,104

Based on table 3 above, the regression equation is $Y_1 = "38.104+0.490X"$. This equation shows that the regression coefficient value is positive at 0.490, meaning that if the value of the industrial field work practice variable (X) increases by one unit, Employability Skills (Y_1) will increase by 0.490 units. The coefficient of determination) of 0.423 means that the industrial field work practice variable (X) contributes 42.3% to Employability Skills (Y_1).

The results of this research show that industrial field work practices contribute positively to Employability Skills. Increasing the mastery of technical competencies and employability skills of vocational school students can be done in various ways, one of which is through Industrial Work Practices which are part of the vocational school curriculum. Implementation of internship will indirectly provide students with knowledge and experience in working. Good quality industrial work practices will be able to equip students with technical competence and employability skills so that students are ready to work immediately after they graduate. Good quality internships will of course provide good mastery of employability skills for vocational school students.

The results of this research are in line with research by [16] showing that the efforts made by several universities in Malaysia focus on producing graduates to fill the labor market, a number of these graduates equip themselves with increased employability skills through learning programs at work (WBL). The research results show that the program is able to increase the employability skills of graduates.

Preparing students to have technical skills and employability skills stems from the quality of the implementation of the learning program. Several research results show factors that interact with each other in the learning process, including the learning system [17]; [18]. The research results of [19] reveal that effective learning factors, namely tutoring, student participation, and the learning environment, partially or jointly have a significant influence on employability skills.

The development of employability skills is a continuum, through learning activities carried out inside and outside the classroom. Students' employability skills can be developed through academic assignments, field work practices, industry-based learning, sandwich programs, cooperative learning, work-integrated learning. Apart from that, developing students' employability skills requires facilities and infrastructure, as well as knowing the latest industrial developments. [20] state that developing employability skills can be carried out through various activities such as work experience models, induction programs and project-based learning and can be carried out in various places. Students who are selected to spend one year in industry have the opportunity to develop better employability skills [21].

The second hypothesis of this research is: there is a contribution of industrial field work practices (X) to Technopreneurship Attitudes (Y_2). Testing the second hypothesis uses simple regression analysis with the help of SPSS version 22.0. The results of the hypothesis test are as follows.

Table 4. Hypothesis Test Results X- Y_2

Variable	Value r	Value	Value t	Koef.	Konst.
X- Y_2	0,580	0,336	0,000	0,471	40,209

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Based on the table above, the regression equation is $Y_2 = "40.209+0.471X"$. This equation shows that the regression coefficient value is positive at 0.471, meaning that if the value of the industrial field work practice variable (X) increases by one unit, Technopreneurship Attitudes (Y₂) will increase by 0.471 units. The coefficient of determination) value of 0.336 means that the industrial field work practice variable (X) contributes 33.6% to Technopreneurship Attitudes (Y₂).

The results of this research indicate that industrial field work practices contribute positively to Technopreneurship Attitudes. This research is in line with the benefits of industrial field work practice, namely the development of student participants' learning independence and entrepreneurial abilities, and increasing professional skills as provisions for improving living standards and sustainable self-development [22]. There are two learning models that are perceived to strongly influence the growth of interest in entrepreneurship, namely: (1) production-based learning model and (2) service-based learning model. Job placement activities and work practices in production units have a score equivalent to the average interest of graduates in entrepreneurship. Graduates perceive internship activities or industrial work practices as triggering a growing interest in entrepreneurship [23].

4. CONCLUSION

Based on the research results, it can be concluded that: (1) industrial field work practices contribute 42.3% to the Employability Skills of vocational school students in the Machining Engineering skills competency in Gorontalo Province, and (2) industrial field work practices contribute 33.6% to Technopreneurship Attitudes of vocational school students regarding the competency of Machining Engineering skills in Gorontalo Province. Based on the research conclusions, it is recommended that schools can implement good industrial partnerships to support the implementation of industrial field work practices. Apart from that, schools must ensure that the implementation of industrial work practices runs according to the demands of the subject so that the objectives are achieved, namely; a. internalization of soft skills in the world of work; b. application of mastered hard skills to actual work in accordance with applicable Standard Operating Procedures (POS); c. improving and developing hard skills in certain fields in accordance with the curriculum and needs of the world of work; and D. preparing students' independence for entrepreneurship.

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