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The Effect of Hard Skills, Soft Skills, and Field-work Practice Experience on Job Readiness of Vocational Students

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Abstract
The era of the Industrial Revolution 4.0 requires vocational students to have work readiness to master hard skills, soft skills, and relevant fieldwork experience. This study aims to analyze the effect of hard skills, soft skills, and fieldwork practice (PKL) on the work readiness of vocational students in facing the challenges of Industry 4.0. The research method used is quantitative with a descriptive approach and multiple linear regression, involving vocational students as research subjects. The sampling technique used in this study is random sampling. The data collection method used was a survey using a questionnaire. The results showed that hard skills have a significant effect on work readiness, and soft skills have a significant effect on work readiness. In addition, the PKL experience positively contributes to increasing students' work readiness by providing direct experience in the industrial world.

Keywords
hard skill; soft skill

I. Introduction

The rapid development of technology has led to significant changes during the Industrial Revolution 4.0. The Industrial Revolution 4.0, commonly known as the "Cyber-Physical System," is a set of technologies to manage the connection of computer-based systems

(cyber) with the physical environment (physical environment), monster man. Implementing CPS in various industrial sectors, ranging from production and manufacturing systems to logistics systems, is the key for a company to enter the industrial era 4.0, which, if managed properly, will significantly increase competitiveness and economic value ma'arif. The fourth-generation revolution provides opportunities and challenges for the world of work because progress in science and technology, which drives the revolution, also brings about consequences like unemployment and competition between humans and machines and increasingly high competency demands (Nabilah & Anggrainie, 2022). In the era of the Industrial Revolution 4.0, learning methods and curriculum in SMK need to adapt to the development of the industrial world. This is challenging for educational institutions, especially vocational schools, to produce graduates ready to work in an increasingly complex industrial world. Therefore, vocational education in Indonesia is essential in preparing a workforce that can compete in the industrial era 4.0.

SMK is expected to be a solution to reduce unemployment because graduates of SMK students are prepared to go directly into the world of work. However, some problems occur in the world of work. Despite expectations that they would serve as a solution, SMKs have not performed effectively. Based on data from the Central Statistics Agency (BPS), the open unemployment rate (TPT) for vocational school graduates in Indonesia in August 2024 was 9.01%. This figure is the highest in Indonesia compared to unemployment for elementary school graduates below 2.32%, junior high school: 4.63%, and high school: 6.84%. Based on observations made by researchers at SMKN 3 Pati on student graduates, 40% of students have not found a job after graduation. Ideally, according to the Ministry of National Education, the employment rate of vocational graduates is 75%. From the data obtained, 42 students have worked after graduation. The data above shows that students who have not worked lack the skills needed in the industry.

Hard skills refer to specialized, specific, and measurable skills that are essential for a job. Training and formal education, such as at school, will enable the acquisition of hard skills. These skills are essential for the demands of today's industrial world, which requires special or specific expertise in various fields. In Indonesia, the challenge of work readiness focuses on the skills gap owned by graduates and the mismatch between employer requirements (Riyanto et al., 2023). In this industrial era 4.0, every graduate is aware of the need to master expertise or skills to create a professional workforce that is needed to balance the existence of technology now (Rezasyah et al., 2018). States that one's success is supported by emotional intelligence or soft skills, which are considered to contribute to work readiness in the current era (Lubis, 2021). Soft skills are the ability to manage themselves and overcome

the problems around them; soft skills are a person's character that is difficult to measure but critical in the industrial era 4.0, which is increasingly complex and emphasizes collaboration between individuals (Ryzana, 2019).

Based on the explanation above, it is essential for students to be aware of the importance of improving their quality to increase workforce competitiveness. Students must adapt quickly and be ready to face the era of the Industrial Revolution 4.0, so it is important to master skills in their field of expertise. Therefore, researching the three factors above is essential to provide a comprehensive picture for developing vocational education curricula and learning programs that can effectively improve the work readiness of vocational students in the industrial era 4.0. Currently, job absorption for graduates of the expertise program at SMKN 3 Pati remains below expectations. This suggests that there is still room for improvement in the role of SMKs in developing a skilled and competent middle-level workforce. One of the key issues is that SMK graduates are not fully gaining practical, real-world experience through industrial work practices. Considering these and other previously mentioned factors, the researcher is motivated to conduct a study entitled *"The Effect of Hard Skills, Soft Skills, and Fieldwork Work Practice Experience on the Work Readiness of Vocational Students in the Industrial Era 4.0."*

II. Method

This research employs a quantitative approach using the survey method. A quantitative approach involves measuring both independent and dependent variables through statistical analysis. The primary objective of this study is to examine the influence of independent variables on the dependent variable. The survey method is utilized to collect data naturally from a specific population without artificial manipulation. However, researchers may apply various instruments during data collection, such as questionnaires, tests, and structured interviews. These instruments differ from the treatments typically used in experimental research (Sugiyono, 2019).

The sampling technique used in this study was probability sampling. Researchers used a random sampling technique. Simple random sampling is a sampling technique that randomly takes sample members from the population without paying attention to the strata in the population. In this study, the sample consisted of 130 vocational students majoring in skin and hair beauty, including 65 students from SMKN 3 Pati, 50 from SMK PGRI 1 Kudus, and 15 from SMK Bhakti Utama Pati. The data collection technique uses a Likert scale. Furthermore, data analysis was carried out using hypothesis testing, namely multiple linear regression analysis, T-test, and F-test. Tools to analyze data using SPSS 29.0.

III. Result and Discussion

Descriptive Analysis of Research

This study was conducted in three vocational high schools, namely SMKN 3 Pati, SMK Bhakti Utama Pati, and SMK PGRI 1 Kudus, focusing on the Skin and Hair Beauty Expertise Program. The object of this research is class XII, which carried out fieldwork practices with 130 respondents. The table shows that each variable consists of 130 respondents.

Table 1. Research Descriptive Analysis Result

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Hard skill	130	9.00	24.00	18.6154	2.46018
Soft skill	130	5.00	20.00	16.8538	2.42440
Fieldwork eperience	130	5.00	20.00	17.3692	2.30314
Work readiness	130	6.00	24.00	20.6769	2.90206
Valid N (listwise)	130				

Source: Process Primary Data, 2025

Based on the descriptive analysis test results, the distribution of data obtained by researchers can be described as follows:

1. The hard skill variable (X_1) in the data has a minimum value of 9 and a maximum value of 24. The average value is 18.61, and the standard deviation is 2.46018.
2. The soft skill variable (X_2) in the data has a minimum value of 5 and a maximum value of 20, a mean value of 16.85, and a standard deviation of 2.42440.
3. The fieldwork experience (PKL) variable (X_3) has a minimum value of 5 and a maximum value of 20, with an average of 17.36, while the standard deviation value is 2.30314.
4. The work readiness variable (Y) has a minimum value of 6 and a maximum value of 24, with an average of 20.67 and a standard deviation of 2.90206.

Hypothesis Test

In this study, the hypothesis was tested using the SPSS 29 program. The analysis will include multiple linear regression, as well as partial, simultaneous, and coefficient of determination (R^2) tests to examine the relationship between the independent and dependent variables. To comprehend the variables under investigation, consider the following hypothesis:

Multiple Linear Regression Test

Table 2. Multiple Linear Regression Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.100	1.206		.912	.363
	Hard Skill	.061	.072	.052	.850	.397
	Soft Skill	.361	.094	.301	3.836	<,001
	fieldwork experience	.712	.090	.565	7.887	<,001

a. Dependent Variable: Work Readiness

Source: Process Primary Data, 2025

Multiple linear regression analysis is generally as follows:

Y= a+b1X1+b2X2+b3X3

= 1.100+0.061+0.361+0.712

1) The value of 1.100 is a constant or a state when the work readiness variable has not been influenced by other variables, namely the hard skills variable (X_1), soft skills (X_2), and fieldwork experience (X_3). If the independent variable does not exist, the work readiness variable does not change.
2) b1 (X_1 regression coefficient value) of 0.61 indicates that the hard skill variable positively influences work readiness. This means that each increase of 1 variable will affect work readiness by 0.61, assuming that other variables are not examined in this study.
3) b2 (X_2 regression coefficient value) of 0.361 indicates that the soft skills variable positively influences work readiness. This means that each increase of 1 variable will affect work readiness by 0.361, assuming that other variables are not examined in this study.
4) b3 (regression coefficient value X_3) of 0.712 indicates that the fieldwork experience variable positively influences work readiness. This means that each increase of 1 variable will affect work readiness by 0.712, assuming that other variables are not examined in this study.

Partial Test (T-Test)

The t-test serves to test the hypothesis individually, including the variables hard skills (X_1), soft skills (X_2), and fieldwork experience (X_3) on work readiness (Y).

Variable X_1 to Y

Table 3. T-Test X_1 to Y Result

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	9.069	1.662		5.458	<,001
	Hard Skill	.624	.089	.529	7.045	<,001

a. Dependent Variable: Work Readiness

Source: Process Primary Data, 2025

Table 3 partial T-test results show that the significance value of the effect of hard skills on work readiness is 0.001 < 0.05, and the t_{value} is 7.045 > t_{table} 1.978; then Ho is rejected and Ha is accepted. This means that hard skills have a significant influence on work readiness.

Variable X_2 to Y

Table 4. T Test X_2 to Y Result

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.454	1.182		4.614	<,001
	Soft Skill	.903	.069	.755	13.010	<,001

a. Dependent Variable: Work Readiness

Source: Process Primary Data, 2025

Table 4 partial T-test results show that the significance value of the effect of soft skills on work readiness is 0.001 < 0.05, and the t_{value} is 13.010 > t_{table} 1.978; then Ho is rejected and Ha is accepted. This means that soft skills have a significant influence on work readiness.

Variable X_3 to Y

Table 5. T Test X_3 to Y Result

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.820	1.128		2.499	.014
	Field Work Experiance	1.028	.064	.816	15.967	<,001

a. Dependent Variable: Work Readiness

Source: Process Primary Data, 2025

Table 5 partial T-test results show that the significance value of the effect of hard skills on work readiness is 0.014 < 0.05, and the t_{value} is 15.967 > t_{table} 1.978; then Ho is rejected and Ha is accepted. This means that fieldwork practice experience has a significant influence on work readiness.

Simultaneous Test (F-Test)

Table 6. F Test Result

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	777.383	3	259.128	105.647	<,001[b]
	Residual	309.048	126	2.453		
	Total	1086.431	129			

a. Dependent Variable: Work Readiness

b. Predictors: (Constant), Field Work Experiance, Hard Skill, Soft Skill

Source: Process Primary Data, 2025

From Table 5, it can be seen that the significance value for hard skills (X_1), soft skills (X_2), and fieldwork experience (X_3) on work readiness (Y) is 0.001 < 0.05, and the f_{count} 105.647 > f_{table} value 3.27. This proves that Ho is rejected and Ha is accepted. This result means that hard skills (X_1), soft skills (X_2), and PKL experience (X_3) have a significant influence on work readiness (Y).

Results of the Coefficient of Determination Analysis

Table 7. Result of Coefficient of Determination Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.846[a]	.716	.709	1.566

a. Predictors: (Constant), Field Work Experiance, Hard Skill, Soft Skill

Source: Process Primary Data, 2025

The coefficient of determination (R^2) aims to determine the effect of hard skills (X_1), soft skills (X_2), and PKL experience (X_3) on work readiness (Y) together, which is then expressed in (%). Based on Table 7, the R_{square} value is 0.716. This shows that variable X influences variable Y simultaneously by 71.6%, with the rest being influenced by other factors.

Discussion

The Effect of Hard Skill on Work Readiness

Based on the T-test, the answer to the first problem formulation can be found, namely the effect of hard skills on the work readiness of vocational students. The research results show a positive influence between the hard skills variable (X_1) and work readiness (Y). This is evidenced by the results of the t-test with the data obtained by the t_{value} of 7.045, while the t_{table} is 1.978, so there is a $t_{value} > t_{table}$ or 7.054 > 1.978. So in testing this hypothesis, Ha is accepted and Ho is rejected. Namely, hard skills have a positive effect on work readiness. Based on the influence, it also refers to the R square value, which is 0.276 if presented as 27.6% of the influence of hard skills on work readiness.

This study's results align with previous research conducted with the title "Hard Skills as a Dominant Factor in Work Readiness in the Industrial Era 4.0 (Riyanto et al., 2023). The results of this study indicate that the hard skill variable affects work readiness. It can be seen from the calculated t_{value} of 8.637, which is greater (>) than 1.96, with a probability of 0.00, which is smaller (<) than 0.05. In addition, this research is also in line with research entitled *"The Effect of Soft Skills, Hard Skills on Work Readiness according to Industry 4.0 Needs of Makassar City Vocational High School Students"* (Irfan et al., 2022). Based on the T-test, the data processing results show that the hard skill variable has a regression coefficient of 0.247 with a probability of 0.001. This supports H2, as the significance value is less than 0.05, indicating that the hard skill variable has a significant effect on work readiness.

The Effect of Soft Skill on Work Readiness

Based on the results of the partial statistical test (T-test), the answer to the second problem formulation can be found, namely the effect of soft skills on the work readiness of vocational students. The research results show a positive influence between the soft skills variable (X2) and work readiness (Y). This can be proven by the results of the T-test, which obtained the value of t_{count} 13.010 > t_{table} 1.978, then Ho is rejected, and Ha is accepted. This means that soft skills have a significant influence on work readiness. In addition, based on the influence obtained, it also refers to the R_{square} value of 0.569, which, if present, is 56.9% of the influence of soft skills on work readiness.

Previous studies have highlighted the importance of soft skills in the context of Industry 4.0. For example, Ponamon et al. (2023) identified soft skills as essential competencies required by human resources in their study titled *"Recruitment and Selection of Human Resources in the Industry 4.0 Era: A New Conceptual Model."* Similarly, research conducted by

Frahidayah, Murtini, and Susantiningrum (2021), titled *"The Effect of PKL Experience, Self-Confidence, and Mastery of Soft Skills on Job Readiness,"* supports this finding. Their t-test results indicate that mastery of soft skills has a significant positive effect on job readiness, with a t-value of 5.329 (greater than the critical value of 1.970) and a significance level of 0.001 (less than 0.05).

The Effect of Fieldwork Experience on Work Readiness

Based on the T-test, the third problem formulation can be answered, namely the effect of fieldwork experience on the work readiness of vocational school students. The results of the research show that fieldwork experience (X_3) has a positive effect on work readiness (Y). The effect is evidenced by the results of the T-test with a t_{value} of 15.967 > t_{table} 1.978. Based on the influence, it also refers to the R square value, which is 0.666 if presented as 66.6% of the influence of the fieldwork experience on work readiness.

These findings are consistent with previous research. Lisnawati and Adman (2019), in their study titled *"Implementation of the Industrial Work Practice Program in Mastering Office Administration Expertise Competencies"* reported that the average respondent score for the effectiveness of the internship program was 4.47, indicating a high level of perceived effectiveness. Their findings suggest that fieldwork experience positively influences students' work readiness. Similarly, Rahman, Amiruddin, and Latief (2020), in their study *"The Effect of Field Work Practices on Work Readiness in the Industrial 4.0 Era for Class XII Students of SMK Negeri 3 Makassar,"* found that PKL (Praktek Kerja Lapangan) experience significantly affects work readiness. This conclusion is supported by the results of the t-test, which showed a t-count of 7.599—greater than the t-table value of 2.110—indicating a statistically significant effect.

The Effect of Hard Skill, Soft Skill, and Fieldwork Experience on Work Readiness

In testing the fourth hypothesis of hard skill variables (X_1), soft skills (X_2), and industrial work practice experience (X_3) on work readiness (Y), the data analysis used is a simultaneous test (F-test) using multiple linear regression equations because it tests all independent variables on the dependent variable. In the results of testing, the Ha hypothesis is accepted, and Ho is rejected based on the f_{count} value obtained being 105.647, which is greater than the f_{table} value of 3.27, which means that hard skills, soft skills, and industrial work practice experience have a significant influence on work readiness. The influence obtained refers to the R square value of 0.716, which, if present, is 71.6%.

Testing the four independent variables simultaneously to determine whether there is a significant effect on work readiness as variable Y. The results indicate that there is a significant effect on work readiness. If the three X variables are combined to help prepare for work readiness, students will have excellent work readiness so that all graduates will be maximally absorbed in the industry.

Job preparation is crucial to achieving success at a job. Vocational students must have work readiness, which includes physical and mental aspects, as well as readiness in the learning process at school, both cognitively and in other aspects. If the learning process runs smoothly, the outcome will positively impact the implementation of the desired goals. By mastering the competence of expertise in accordance with their fields, students will more easily develop the necessary skills to be ready to face the world of work. In addition, industrial work practices are also a supporting factor for work readiness, which can be seen in aspects of discipline, ability to work together, and student initiative.

IV. Conclusion

Partial statistical tests show that hard skills positively affect work readiness, with a contribution of 27.6%. This can also be seen in the t-test calculation, where the t_{value} is greater than the t_{table}, namely 7.045 > 1.978. There is a positive influence between soft skill variables and work readiness, with a contribution of 56.6%. The result can also be seen in the calculation of the T-test, where the t_{count} is greater than the t_{table}, namely 13.010 > t_{table} 1.978. There is a positive and significant influence between the fieldwork experience variable and work readiness, with a contribution of 66.6%. This can also be seen from the calculation of the T-test, where the t_{count} is greater than the t_{table}, namely 15.967 > t_{table} 1.978. There is a positive influence between hard skills, soft skills, and fieldwork experience variables on work readiness, with a contribution of 71.6%. The value of the f count, 105.647 > 3.27, also demonstrates this influence.

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