

THE INFLUENCE OF APPRENTICESHIP AND WORK MOTIVATION ON THE WORK READINESS OF CLASS XII WELDING ENGINEERING STUDENTS AT SMKN 10 MALANG

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Abstract

Preliminary observations at SMKN 10 Malang revealed that 40% of students who had completed an industrial work practice still exhibited a lack of readiness to enter employment. This study aims to examine the effect of apprenticeship (industrial work practice) and work motivation on the work readiness of twelfth-grade Welding Engineering students at SMKN 10 Malang, both partially and simultaneously. The research employed an ex post facto design with a quantitative approach. The population comprised 45 students, all of whom were taken as the sample using a saturated sampling technique. The instrument was a four-point Likert scale questionnaire that has been tested for validity and reliability. The data were analyzed using multiple linear regression with the aid of SPSS. The results showed that, partially, apprenticeship experience did not have a significant effect on work readiness ($t = -1.284$; Sig. = 0.206), whereas work motivation had a positive and significant effect ($t = 10.524$; Sig. < 0.001). Simultaneously, both variables significantly affected work readiness ($F = 94.286$; Sig. < 0.001) with a coefficient of determination (R Square) of 0.809, indicating that 80.9 % of the variance in work readiness was explained by these two variables. These findings confirm that work motivation is the primary predictor of students' work readiness, while apprenticeship experience in the context of this study did not make a significant partial contribution. The implication is that strengthening work motivation should be prioritized in efforts to enhance the work readiness of welding engineering students.

Keywords: Work readiness; Work motivation; Industrial work practice; vocational high school; Welding engineering

1. INTRODUCTION

Vocational education has a strategic mandate in preparing human resources with work competencies according to industry needs. Vocational High Schools (SMK) are designed as educational institutions that emphasize mastery of practical skills, work attitudes, and the readiness of graduates to enter the workforce directly. Unlike academic education, which is more oriented towards mastery of theory, vocational education demands a balance between conceptual understanding and technical application in the field (Qur'ani et al., 2024). The success of vocational education is measured not only by academic achievements such as national exam scores or report cards, but primarily by the level of work readiness of graduates and their ability to be absorbed in the labor market. Work readiness itself encompasses aspects of knowledge, skills, attitudes, and self-confidence to carry out specific job roles. However, reality shows that vocational high school graduates still face serious challenges in entering the workforce (Wardoyo et al., 2024).

Data from the Central Statistics Agency (BPS) in 2025 shows that the open unemployment rate in Indonesia is still dominated by vocational high school (SMK) graduates, reaching 8.63 percent, higher than high school graduates, which are around 6.5 percent, and university graduates, which are around 5.2 percent (BPS, 2026). This condition creates a rather worrying paradox: graduates who are systematically designed to be work-ready actually face the greatest difficulties in entering the workforce. This phenomenon indicates a serious gap between the competencies produced by educational institutions and the needs of the industrial world. This gap relates not only to technical skills but also to mental readiness, work attitude, discipline ethic, effective

communication, and adaptation to the dynamic industrial work culture (Agustian et al., 2024). The reality in the field shows that not all vocational school students, especially in the field of welding engineering, have adequate work readiness (Bramantiya & Nurhadi, 2024). Based on initial observations at SMKN 10 Malang, students were still found to lack confidence in entering the workforce, had not mastered welding techniques according to industry standards, did not understand work safety procedures, and did not have a clear picture of work demands in the industrial world. This is supported by the results of interviews that 40% of grade XII students of SMKN 10 Malang who had completed internships were unprepared to start work. This phenomenon can occur because some welding engineering graduates actually choose to work outside their field of expertise because they feel unprepared or not confident in their competencies in the face of industry (Mahande & Rahmat Fadhli, 2023). This condition confirms that work readiness is a multidimensional construct that is not formed automatically through the formal learning process at school, but rather is the result of a complex interaction between external factors (such as learning quality, infrastructure, industrial experience) and internal student factors (such as motivation, interest, self-confidence). Therefore, it is very important to identify the determinants that influence student work readiness, especially in welding engineering expertise competencies.

One external factor that plays a central role is apprenticeship or industrial work experience (prakerin). Prakerin is a form of experiential learning that provides students with the opportunity to interact directly with the world of work, usually for a certain duration (e.g., 3 to 6 months) (Agustina & Rohman, 2025). Through Prakerin, students are expected to be able to apply the knowledge and skills they have acquired in school to real work situations, complete with pressure, targets, and professional responsibilities. In addition, Prakerin also functions as a means to introduce work culture, standard operating procedures (SOPs), professional ethics, and quality demands that apply in the industry (Anisah, 2025). From the perspective of David Kolb's learning theory, Prakerin is at the stage of concrete experience and active experimentation, which are two important pillars in the transformative learning cycle (Ermawati et al., 2024). Thus, theoretically, Prakerin has a significant contribution to the formation of work readiness.

Previous research consistently shows that internship positively influences the job readiness of vocational high school students. A study by Susilo & Ismiyati (2020) found that internship, information about the world of work, and motivation to enter the world of work significantly influenced, both partially and simultaneously, the job readiness of students at SMK Bhakti Persada Kendal. Similar findings were presented by Nisrina et al. (2023) who confirmed that internship and self-efficacy contributed positively to student job readiness, with an effective contribution reaching 54.2 percent. Meanwhile, research by Imamah (2020) showed that students with high internship scores tended to have better job readiness than students with low scores. Another study by Wijayakusumo & Zainul (2024) also confirmed that the duration and quality of internship implementation were positively related to the job readiness level of mechanical engineering students. However, most of these studies tend to view internship as a single, stand-alone variable, thus not fully explaining how the effectiveness of industrial experience can be moderated or influenced by internal student factors, such as work motivation.

In addition to external factors, internal factors such as work motivation also play an equally important role. Motivation, from the perspective of educational and organizational psychology, is the driving force that directs, activates, and maintains individual behavior to achieve specific goals (Umamy et al., 2024). In the context of vocational education, learning motivation and work motivation play a role in determining how much effort students expend to master competencies, how persistent they are in the face of technical difficulties, and how high their career aspirations are. Students with high work motivation tend to be more active in the learning process at school, more serious in participating in workshops, more proactive in seeking information about the world of work, and have a strong desire to develop skills independently (Janah et al., 2023). Conversely, students with low motivation tend to be passive, give up easily, are less involved in practical learning, and ultimately lack adequate preparation for entering the world of work (Mustikaati et al., 2025).

However, the reciprocal relationship between motivation and internship experience has rarely been analyzed simultaneously within a coherent theoretical model. However, it is strongly suspected that work motivation not only directly influences job readiness but can also strengthen or weaken the positive effects of internship experience. (Rakasiwi et al., 2023). For example, students with high motivation are better able to absorb lessons and deeply internalize industry experiences, while students with low motivation may only undergo formal internships without significant changes in their readiness (Datu et al., 2022). Furthermore, there are indications of implicit inconsistencies in previous research findings. Several studies report that not all students who have internship experience demonstrate optimal work readiness. This indicates that the effectiveness of internships is highly dependent on the individual's internal conditions, especially motivation. In other words, a good internship is not enough if it is not supported by strong motivation from within the student. Therefore, an

analytical approach that simultaneously integrates both variables is necessary to obtain a more accurate picture of the determinants of work readiness. To empirically test the work readiness determination model, this study will focus on 12th-grade students majoring in welding engineering at SMKN 10 Malang. The selection of 12th-grade students was based on the consideration that they had completed most of the learning process, including productive subjects and internship programs. Thus, they have relevant experience to assess their level of work readiness. SMKN 10 Malang was chosen as the research location because this school is one of the leading vocational institutions in East Java with a concentration in welding engineering, with A accreditation, and has diverse industrial partners in the Greater Malang area and its surroundings (Mahfudah et al., 2021) . These conditions make SMKN 10 Malang a strategic location to test the work readiness determination model and produce applicable recommendations.

Based on the background description that has been presented, this study was formulated to answer three main questions. First, is there a significant influence of apprenticeship experience (*prakerin*) on the work readiness of class XII Welding Engineering students at SMKN 10 Malang? Second, is there a significant influence of work motivation on the work readiness of class XII Welding Engineering students at SMKN 10 Malang. Third, is there a significant influence of *prakerin* experience and work motivation simultaneously on the work readiness of class XII Welding Engineering students at SMKN 10 Malang. Theoretically, this study is expected to contribute in strengthening the conceptual model of work readiness based on the integration of industrial experience (Niza et al., 2025) and individual motivation (Edio Mariano Piedade Soares, 2026) . Thus, this problem formulation was formulated to empirically test the determinants of work readiness which has so far been a gap in the vocational education literature, especially in welding engineering expertise competencies that have unique and complex characteristics as previously explained.

2. METHOD

This study employed an *ex post facto* design through a quantitative approach. *Ex post facto* was chosen because this study aimed to examine events that had already occurred, namely the implementation of internships completed by students, and then trace back to determine the factors that influenced the dependent variable without providing any manipulation or treatment to the independent variable (Fadillah & Mahyudin, 2026) . The population of this study was all 12th-grade students majoring in Welding Engineering at SMKN 10 Malang who had completed the internship program. The population size was 55, with 10 students as respondents for the instrument trial. Therefore, the sampling technique used was saturated sampling of 45 students. This aligns with the recommendation that for research using multiple regression analysis, the minimum sample size is 30 to 50 respondents (Setiadi & Sumaryoto, 2021) . There are three variables in this study: two independent variables and one dependent variable. The first independent variable is apprenticeship experience (X1). The second independent variable is work motivation (X2). The dependent variable is work readiness (Y). All variables were measured using a questionnaire with a five-choice Likert scale: strongly agree, agree, undecided, disagree, and strongly disagree.

Table 1. Instrument Grid

Variables	Indicator	Number of Grains
Apprenticeship (prakerin) (X1)	1. Duration of implementation	10
	2. Education and human resource development	
	3. Strengthening learning outcomes	
	4. Work skills	
	5. Attitude formation	
Work Motivation (X2)	1. Desire	10
	2. Drive and needs	
	3. Hopes and aspirations	
	4. Self-respect	
	5. Environment	
Work readiness (Y)	1. Logical and objective considerations	10
	2. Be critical	
	3. Responsible	
	4. Able to adapt to the environment	
	5. Ambition to progress	

Adapted from (Novita & Armida, 2022; Setiadi & Sumaryoto, 2021; Frahidayah et al., 2024; Patimah & Sumaryoto, 2024) .

The research instrument, a questionnaire, was pre-tested on 10 students outside the research sample. Validity was tested using Pearson product-moment correlation to ensure each item measured the intended indicator (Prasetia et al., 2022) . Reliability was tested using Cronbach's Alpha coefficient to measure the instrument's internal consistency. An instrument is considered reliable if the Cronbach's Alpha value exceeds the required limit of 0.70 (Ghozali, 2018) .

Data collection was conducted by distributing questionnaires directly to 45 respondents at SMKN 10 Malang. Respondents completed the questionnaires independently but were accompanied by the researcher to avoid misinterpretation of the statements. The collected data were then analyzed using SPSS software. Before hypothesis testing was conducted, a series of classical assumption tests were first performed. These assumption tests included normality, multicollinearity, heteroscedasticity, and autocorrelation. The Shapiro-Wilk method was used to test for normality because the sample size was less than 50. (Purnomo & Sutadji, 2022) . The multicollinearity test is based on the tolerance value and Variance Inflation Factor (VIF). The heteroscedasticity test is conducted by observing the scatterplot graph. The autocorrelation test uses the Durbin Watson statistic (Ghodang, 2020) .

The data analysis technique used was multiple linear regression with the help of SPSS software. The selection of this analysis was based on its suitability to the research objective, namely to test the influence of two independent variables on one dependent variable simultaneously and partially. Hypothesis testing was carried out through the t-test to test the partial effect, the F-test to test the simultaneous effect, and the R-square coefficient of determination to determine the contribution of the independent variables to the dependent variable. The decision-making criteria were based on a significance level of 0.05. If the significance value is less than 0.05 or the calculated t-value is greater than the t-table, then the hypothesis is accepted. Conversely, if the significance value is more than 0.05 or the calculated t-value is less than the t-table, then the hypothesis is rejected (Ghodang, 2020) . All analysis procedures were carried out with a 95 percent confidence level.

3. RESEARCH RESULT

This section systematically presents all findings from the data processing. The presentation begins with an overview of respondents' achievement levels for each variable through descriptive statistical analysis. Next, the instrument quality is presented, including validity and reliability tests, followed by the results of the classical assumption test, a prerequisite for multiple linear regression analysis. The results of the regression tests, including partial tests , simultaneous tests, and coefficients of determination, are then presented. The section concludes with an in-depth discussion of each hypothesis, referring to theory and previous research.

3.1 Descriptive Statistical Analysis

Descriptive analysis was conducted to obtain a general overview of respondents' achievement levels for each variable. The results are presented in Table 2 below:

Table 2. Summary of Descriptive Statistics of Research Variables

Variables	N	Minimum	Maximum	Mean	Standard Deviation
Internship Experience (X1)	45	59	84	69.95	5,424
Work Motivation (X2)	45	39	44	41.58	1,425
Work Readiness (Y)	45	28	44	35.72	2,971

Source: Processed primary data, 2026

Based on Table 2 above, it is known that the average score of internship experience is 69.95 from a range of 59 to 84. The average work motivation is 41.58 from a range of 39 to 44. The average work readiness is 35.72 from a range of 28 to 44. When compared with the ideal maximum score, all variables can be said to be in the high category.

3.2 Validity and Reliability Test

3.2.1 Validity Test

Validity testing was conducted using Pearson product-moment correlation on 10 trial respondents. The r value for N=10 at a 5% significance level was 0.632. A summary of the validity test results per variable is presented in Table 3 below:

Table 3. Summary of Instrument Validity Test Results

Variables	Item Tested	Item Valid	Pearson Correlation Value Range	Significance Value Range
Internship Experience (X1)	10	7	0.813 - 0.913	0.000 - 0.004
Work Motivation (X2)	10	10	0.744 - 0.962	0.000 - 0.014
Work Readiness (Y)	10	8	0.700 - 0.858	0.002 - 0.024

Source: Processed primary data, 2026

Based on the results of the instrument validity test conducted using the Pearson product moment correlation technique, it was found that in the internship experience variable, three statement items were declared invalid, so these three items were removed from further analysis. Meanwhile, all items in the work motivation variable were proven valid. In the work readiness variable, two items were declared invalid, so only eight valid items were used in the analysis. After eliminating the invalid items, the validity test results showed that all valid items had correlation coefficients exceeding the r table with a significance level of less than 0.05.

All valid items in the three variables have Pearson correlation coefficients ranging from 0.700 to 0.962. Based on the correlation coefficient interpretation criteria, a value of 0.700 to 0.799 is considered strong, while a value of 0.800 to 1.000 is considered very strong. Therefore, the majority of valid items have a very strong correlation with the total score of the variable. This proves that each statement item is consistently able to measure the indicators of the construct to be measured. The very small significance values, all below 0.05, indicate that the level of confidence in the validity of the items exceeds 95 percent. Therefore, these valid items are suitable for use in measuring internship experience, work motivation, and work readiness.

3.2.2 Reliability Test

The reliability test used the Cronbach's Alpha coefficient. The results are presented in Table 4 below:

Table 4. Results of Instrument Reliability Test

Variables	Cronbach's Alpha	Number of Grains	Information
Internship Experience (X1)	0.948	7	Reliable
Work Motivation (X2)	0.950	10	Reliable
Work Readiness (Y)	0.919	8	Reliable

Source: Processed primary data, 2026

All three Cronbach's Alpha values were above the required reliability limit of 0.70. Thus, the instrument was declared reliable and suitable for use in data collection. The Cronbach's Alpha values for the three variables ranged from 0.919 to 0.950. According to commonly used reliability criteria, an alpha value above 0.9 is included in the excellent category. This means that this research instrument has very high internal consistency. In more detail, the work motivation variable achieved an alpha of 0.950 (almost perfect), followed by internship experience (0.948) and work readiness (0.919). Very high internal consistency indicates that the statement items in each variable are strongly correlated with each other and measure the same construct homogeneously. By meeting the reliability requirements, the data collected from 45 respondents can be trusted for further analysis using multiple linear regression.

3.3 Classical Assumption Test Results

Prior to hypothesis testing, a classical assumption test was conducted on 45 samples with internship experience. Several classical assumptions must be met, namely, no heteroscedasticity, no multicollinearity, no autocorrelation, and a normal distribution (Anwar & Nursan, 2025).

The normality test used the Shapiro Wilk method because the number of samples was less than 50. The results are presented in Table 5 below:

Table 5. Results of Normality Test (Shapiro Wilk)

Residual Variable	Statistics	df	Sig.
Unstandardized Residual	0.965	45	0.242

Source: Processed primary data, 2026

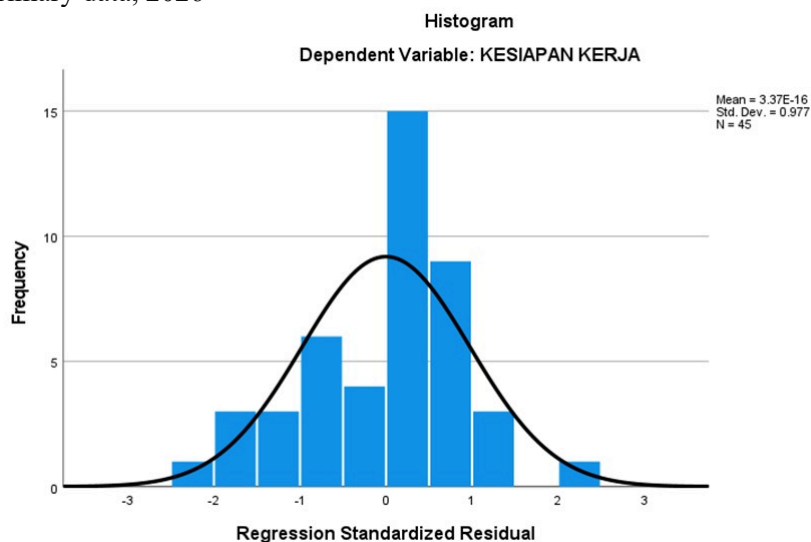


Figure 1. Normality Test

Source: Processed primary data, 2026

The significance value of 0.242 is greater than 0.05, indicating a normal distribution of the data. This is also supported by the histogram graph, which forms a symmetrical bell curve, and the Normal P-plot graph, where the points spread along the diagonal line. The Shapiro-Wilk significance value of 0.242 is well above the critical limit of 0.05. Statistically, this means that the null hypothesis stating that the residuals are normally distributed is acceptable. In other words, the residual data generated from this regression model meets the assumption of normality. Fulfilling the assumption of normality is important because the t-test and F-test used

for hypothesis testing depend on the normality of the residuals. If this assumption is violated, statistical inferences can be biased. By fulfilling the assumption of normality, the results of the partial and simultaneous tests are reliable.

The results of the multicollinearity test are presented in Table 6 below:

Table 6. Multicollinearity Test Results

Mode	l	Coefficients				Collinearity Statistics		
		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Tolerance	VIF	
	1	(Constant)	6,364	1,922	3,311	0,002		
		Internship Experience	-0.125	0.097	-0.120	0.206	0.494	2,024
		Work motivation	0.691	0.066	0.986	10,524	<,001	0.494 2,024

a. Dependent Variable: Internship Experience

Source: Processed primary data, 2026

The tolerance value is 0.494 (greater than 0.10) and the VIF value is 2.024 (less than 10), indicating no multicollinearity between the independent variables. The tolerance value of 0.494 is well above the minimum threshold of 0.10. This indicates no multicollinearity between the variables. The VIF value of 2.024 is also well below the threshold of 10. VIF indicates how much the variance of the regression coefficient increases due to the correlation between predictors. A VIF value below 5 is often considered ideal, and a value of 2.024 is considered low. Thus, the two independent variables (internship experience and work motivation) are not excessively correlated. Fulfilling this assumption means that the estimated regression coefficient can be safely interpreted.

The results of the heteroscedasticity test were carried out using a scatterplot graph which is shown in Figure 2 below:

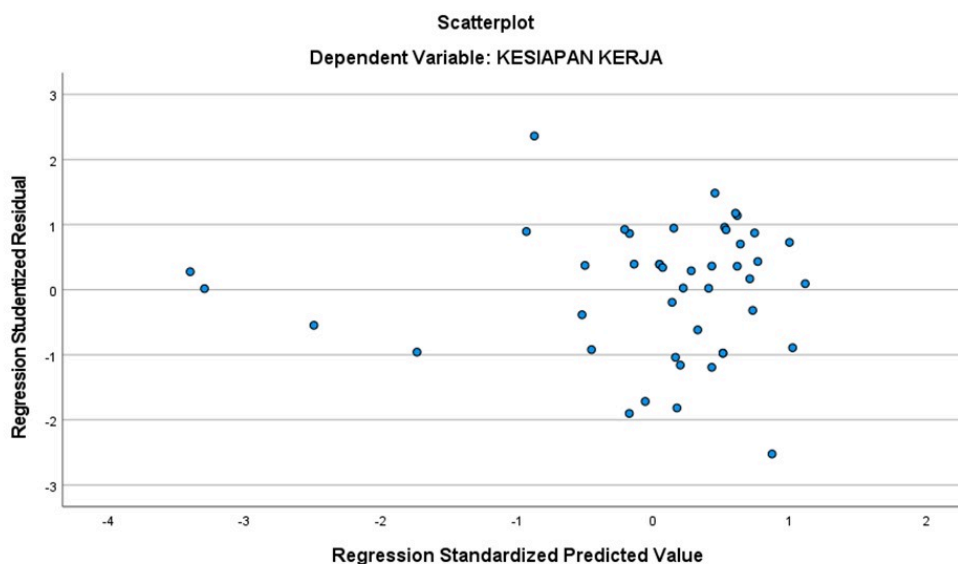


Figure 2. Results of Heteroscedasticity Test

Source: Processed primary data, 2026

Based on the figure above, it can be seen that the data points are randomly distributed without forming a specific pattern. Thus, the regression model is free from heteroscedasticity problems. The random distribution of points on the scatterplot, without forming waves, shrinking, expanding, or other systematic patterns, indicates that the residual variance is constant or homoscedastic. Under homoscedasticity conditions, the regression estimator remains BLUE (Best Linear Unbiased Estimator). If heteroscedasticity occurs, then the significance

test (especially the t-test) can be invalid because the estimated standard error is inaccurate. By fulfilling this assumption, the decision to accept or reject the hypothesis based on the t- and F-tests becomes more reliable.

The final test in the classical assumption test is the autocorrelation test. The results of the autocorrelation test using the Durbin-Watson statistic are presented in Table 7 below:

Table 7. Autocorrelation Test Results (Durbin Watson)

Model Summary					
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson
1	0.904	0.818	0.809	2,610	2,155

a. Predictors: (Constant), Work Motivation, Internship Experience

b. Dependent Variable: Work Readiness

Source: Processed primary data, 2026

The calculated Durbin Watson value of 2.155 lies between dU (1.6148) and 4 minus dU (2.3852). Since the calculated DW is neither less than dL nor greater than 4 minus dL, it can be concluded that there is no evidence of positive or negative autocorrelation. Autocorrelation is usually a concern in time series data, but in cross-sectional data such as this study (45 students), testing is still important to ensure that the residuals are uncorrelated. The absence of autocorrelation means that each observation is independent of the others, so the regression coefficient estimate is unbiased.

3.4 Multiple Linear Regression Test Results

1.4.1 Partial Test (t-Test)

The t-test aims to determine the partial effect of each independent variable on the dependent variable. The results of the t-test are presented in Table 9 below.

Table 8. Partial Test Results (t-Test)

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constants)	6,364	1,922		3,311	0.002
	Internship Experience	-0.125	0.097	-0.120	-1,284	0.206
	Work motivation	0.691	0.066	0.986	10,524	<,001

a. Dependent Variable: Work Readiness

Source: Processed primary data, 2026

Based on the partial test results presented in Table 8, the t-count probability value of the independent variable of internship experience (X1) is 0.206, which is greater than 0.05. So it can be concluded that the first hypothesis is rejected, because there is no influence of the independent variable of internship experience (X1) on the dependent variable of work readiness (Y). Meanwhile, the t-count probability value of the independent variable of work motivation (X2) is less than 0.001, which means it is smaller than 0.05. So it can be concluded that the second hypothesis is accepted, because there is an influence of the independent variable of work motivation (X2) on the dependent variable of work readiness (Y).

1.4.2 Simultaneous Test (F Test)

The F test aims to determine the joint influence of all independent variables on the dependent variable. The F value at 43 degrees of freedom ($nk = 45 - 2 = 43$) is 3.21. The results of the F test are presented in Table 10 below:

Table 9. Simultaneous Test Results (F Test)

		ANOVA				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	Regression	1284,269	2	642,134	94,286	<,001
	Residual	286,042	42	6,811		
Total		1570,311	44			

a. Dependent Variable: Work Readiness

b. Predictors: (Constant), Work Motivation, Internship Experience

Source: Processed primary data, 2026

Based on the results of the simultaneous test in Table 9, the calculated F probability value (Sig.) in the table above is less than 0.001. This shows that the value is smaller than the significance level of 0.05, so it can be concluded that the third hypothesis is accepted because there is a simultaneous influence of internship experience (X1) and work motivation (X2) on work readiness (Y) .

1.4.3 Coefficient of Determination

The coefficient of determination is used to determine the extent of the independent variable's contribution to the dependent variable simultaneously. The results are presented in Table 11 below:

Table 10. Results of the Determination Coefficient (R Square)

Model Summary				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.904	0.818	0.809	2,610

a. Predictors: (Constant), Work Motivation, Internship Experience

Source: Processed primary data, 2026

Based on the analysis results, the coefficient of determination (R-Square) value obtained was 0.809. This shows that the independent variables of internship experience (X1) and work motivation (X2) simultaneously contributed an influence of 80.9% to the dependent variable of work readiness (Y) .

4. DISCUSSION

4.1 The Influence of Internship Experience on Students' Work Readiness

The t-test results show that the internship experience has a significance value of 0.206, which is far above the 0.05 threshold, and a calculated t-value of negative 1.284. Statistically, the first hypothesis can be concluded as rejected. This finding indicates that the independent variable of industrial work experience (X1) does not significantly influence the dependent variable of work readiness (Y) , in fact the negative coefficient indicates an opposite trend. This finding is in stark contrast to almost all previous studies that consistently report a positive and significant influence of industrial work experience on the work readiness of vocational high school students.

Novita & Armida (2022) in their study on office management automation students found that industrial work experience had a significant effect with a regression coefficient of 0.826 and an effective contribution of 13.71 percent. Setiadi & Sumaryoto (2021) on private vocational high school students in Depok City also reported a significant positive effect with a partial contribution of 7.51 percent. Frahidayah et al. (2024) on students at SMK Negeri 1 Karanganyar found that industrial work experience had an effective contribution of 13.71 percent and a relative contribution of 34.32 percent to job readiness. Susilo & Ismiyati (2020) at SMK Bhakti Persada Kendal confirmed that industrial work experience, information on the world of work, and motivation simultaneously had a significant effect. Nisrina et al. (2023) at SMK Negeri 46 Jakarta reported an effective contribution of 54.2 percent from industrial work experience and self-efficacy. Imamah (2020) also showed that students with high industrial work experience scores tend to have better job readiness. Wijayakusumo & Zainul (2024) confirmed that the length and quality of industrial work experience are positively related to the job readiness of mechanical engineering students. Referring to the results and previous research above, the results of this study are fundamentally different. There are at least six interrelated theoretical and contextual explanations. First, from the perspective of David Kolb's experiential learning theory, the process

of transforming experience into knowledge occurs through a four-stage cycle: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Ermawati et al., 2024). The internship at SMKN 10 Malang in welding engineering competencies may only provide the first stage, namely concrete experience, without being followed by structured reflection and adequate guidance to achieve abstract conceptualization. Anisah (2025) emphasized that effective internship must provide not only work experience but also feedback mechanisms, reflective discussions, and challenging assignments. If students only perform routine work without being asked to analyze why a welding technique is successful or failed, then the experience will not be transformed into substantial work readiness. This condition is exacerbated by the characteristics of the welding field which is highly dependent on procedural skills and tactical knowledge that can only be obtained through individual guidance from competent instructors (Hamdani et al., 2024; Harefa et al., 2023).

Second, the quality of placement and the match between the material learned in school and the tasks in industry are critical factors in the effectiveness of internships. Mahande & Rahmat Fadhli (2023) reported that many welding engineering graduates still choose to work outside their field of expertise because they feel unprepared. This indicates a mismatch between the competencies developed in school and the actual needs of industry. In the context of SMKN 10 Malang, although the school has A accreditation and good workshop facilities (Mahfudah et al., 2021), the technological gap between the school workshop and partner industries may still be wide. Industrial welding standards such as AWS or SNI (Hamdani et al., 2024) may not have been fully integrated into the learning. The results of the instrument validity test showed that item number 8 (able to complete work according to company quality standards) was invalid, indicating that students' perceptions of their ability to meet industry standards were inconsistent or that these standards had not been objectively achieved.

Third, the duration of internships is inadequate for the welding engineering field. Wijayakusumo & Zainul (2024) confirmed that the duration of internships is positively related to the level of job readiness. The welding field requires high repetition of motor movements to achieve skill automation. Nur (2024) explained that welding work demands technical precision, hand-eye coordination, and adaptation to various welding positions (1G, 2G, 3G, 4G). The standard internship duration of 3 to 6 months (Agustina & Rohman, 2025) is insufficient to master all variations of welding techniques. The implementation duration indicators in the initial points 1 and 2 indicate validity issues, which could be interpreted as students feeling the internship time is insufficient to provide in-depth understanding or complete assignments well.

Fourth, the negative t-value indicates a negative, albeit insignificant, effect. There are three possible explanations for this. First, there is a learning effect that makes students aware of their competency gaps. After undergoing internships, students become more aware of high industry standards, leading them to rate their job readiness lower than before the internship. This is a reality depressant effect, which actually indicates that internships serve as an honest assessment tool. Second, there is a moderating variable not included in the model. Datu et al. (2022) stated that students with high motivation are better able to internalize industry experience, while students with low motivation only undergo formal internships. If the proportion of students with low motivation in this study sample is large enough, the average effect of internships could be insignificant or even negative. Third, there are model specification issues such as non-linearity or unmodeled interaction effects. Linearity tests have been conducted and the results are linear, so the possibility of non-linearity is small. An interaction effect between internships and motivation is highly likely.

Fifth, previous studies reporting positive effects were generally conducted on different skill competencies such as office automation, accounting, or computer and network engineering (Frahidayah et al., 2024; Novita & Armida, 2022; Setiadi & Sumaryoto, 2021). Welding engineering competencies have unique characteristics that fundamentally differentiate them. Indirasari & Mulyana (2024) explain that work readiness in the field of welding engineering encompasses not only technical skills but also psychological readiness (pressure resistance and self-confidence), social readiness (teamwork and accepting criticism), and an understanding of work culture (discipline, responsibility, integrity). Psychological readiness, especially resilience to physical risks (heat, sparks, smoke) and the demands of production targets, cannot be built solely through ordinary internship experience without the support of strong internal factors such as motivation and self-efficacy (Nur, 2024). In other words, internship experience may be a necessary but not sufficient requirement for building work readiness in the field of welding.

Sixth, the quality of SMKN 10 Malang's industrial partnerships needs to be evaluated. Although the school has diverse industrial partners in the Greater Malang area (Mahfudah et al., 2021), not all partners necessarily provide a supportive learning environment. Standard operating procedures, professional ethics, and quality requirements applicable in industry (Anisah, 2025) may not be systematically socialized to students. The

lack of competent and willing field supervisors is also a factor. Novita and Armida (2022) found that the guidance indicator during internship obtained the lowest Respondent Achievement Rate (TCR) score, at 80.87%. This is still high but indicates room for improvement.

4.2 The Influence of Work Motivation on Students' Work Readiness

The results of the study indicate that work motivation has a significance value of less than 0.001, which is far above the threshold of 0.05, and the t-test is positive at 10.524. This finding is statistically and substantively strong, so it can be concluded that the second hypothesis is accepted. Work motivation is proven to be the main predictor of welding engineering students' work readiness due to its significant positive influence. This result is in line with all previous studies.

Novita & Armida (2022) reported a significant regression coefficient of 0.176 for work motivation. Setiadi & Sumaryoto (2021) found that motivation to enter the workforce contributed 32.81% to job readiness, with a t-value of 5.941. Frahidayah et al. (2024) in a more comprehensive study with three independent variables found that soft skill mastery contributed the largest contribution (44%), followed by self-confidence (21%), and internship experience (34%). Although motivation was not explicitly measured, self-confidence and soft skill variables were closely related to motivation. These results confirm that internal factors have a more dominant influence than external factors.

From the perspective of Vroom's expectancy theory, work motivation is a function of three components, namely expectancy, instrumentality, and valence. Expectancy is the belief that effort will result in good performance. Instrumentality is the belief that good performance will lead to desired outcomes. Valence is the value a person places on those outcomes. Highly motivated 12th-grade Welding Engineering students at SMKN 10 Malang are likely to have positive expectations that by studying hard and practicing welding, they will master welding techniques. They also believe that this mastery will make it easier for them to find decent jobs in the manufacturing, construction, shipping, or oil and gas industries (Hamdani et al., 2024). Job valence in the welding field is also high because this sector is strategic and promises good income. Umamy et al. (2024) explain that motivation as a driving force directs, activates, and maintains individual behavior to achieve goals.

Locke's goal-setting theory is also relevant. Specific, challenging, and committed goals will improve performance. Motivated students tend to have clear career goals, such as becoming a certified welder, opening their own welding shop, or working for a national or multinational company. Janah et al. (2023) found that students with high work motivation tend to be more active, more serious in workshop practice, take the initiative to seek information about the world of work, and have a strong desire to develop skills independently. Conversely, Mustikaati et al. (2025) emphasized that students with low motivation tend to be passive, give up easily, are less engaged in practical learning, and ultimately lack adequate preparation.

In the context of welding engineering, motivation is crucial because this field demands perseverance, precision, patience, and a readiness to work under physical pressure. Nur (2024) explains that welding involves the risk of heat, sparks, smoke, and demanding production targets. Without strong motivation, students will easily give up when faced with difficulties. Motivation also builds the mental resilience and self-confidence necessary to face competitive job selection. Indirasari & Mulyana (2024) emphasize that job readiness includes psychological readiness (stress tolerance, self-confidence), which cannot be separated from motivation.

The validity test results for the work motivation variable showed that all 10 items were valid, with a correlation range of 0.744 to 0.962 and a significance level of 0.000 to 0.014. This is an excellent indicator. A Cronbach's Alpha value of 0.950 indicates perfect internal consistency. This means that the work motivation instrument used is highly reliable and valid for measuring motivational constructs in welding engineering students.

4.3 Simultaneous Influence of Internship Experience and Work Motivation on Students' Work Readiness

The F-test results show a calculated F of 94.286, far exceeding the F-table of 3.21 with a significance level of 0.001. Thus, the third hypothesis is accepted. The R-square value of 0.809 means that 80.9% of the variation in work readiness can be explained by the two independent variables together. The remaining 19.1 percent is influenced by other variables.

A simultaneous significant finding, but a partial insignificance of X1, is a statistically and substantively interesting phenomenon. In multiple regression analysis, this situation can occur for several reasons. First, there is shared variance between X1 and X2 that contributes to Y, but the unique variance of X1 is too small to be detected as significant. However, the tolerance value of 0.494 and the VIF of 2.024 indicate low multicollinearity, so the shared variance is not large. The second possibility is the presence of a suppressor effect.

The work motivation variable may act as a suppressor, suppressing the error component or irrelevant variance of X1, so that when X2 is entered into the model, X1's contribution becomes more visible together. However, because the coefficient of X1 is negative and insignificant, the suppressor effect is not strong. The most theoretical explanation is the existence of a moderation effect. Datu et al. (2022) explicitly stated that students with high motivation will be better able to absorb lessons and internalize industry experience in depth, while students with low motivation may only undergo formal internships without significant changes in readiness. This is a moderation hypothesis. In a regression model that does not include an interaction term, the main effect of X1 may be insignificant because its effect depends on the level of X2. If work motivation moderates the relationship between internship experience and job readiness, then for students with very high motivation, internship experience has a positive effect, while for students with low motivation, the effect could be zero or negative. The combined average of these two groups produces an overall insignificant coefficient (Baron & Kenny, 1986). Further research is strongly recommended to test this moderation effect.

Significant simultaneous results also confirm that an integrative approach combining external and internal factors is superior to one that emphasizes only one factor. Niza et al. (2025) and Edio Mariano Piedade Soares (2026) support a conceptual model of work readiness based on the integration of industrial experience and individual motivation. This research fills a gap in the literature in the field of welding engineering, which is still limited. An R Square value of 0.809 means that there are still 19.1% of other variables that influence work readiness. Other variables that are likely to play a role include self-efficacy (Nisrina et al., 2023; Datu et al., 2022), soft skill mastery (Frahidayah et al., 2024; Setiadi & Sumaryoto, 2021; Janah et al., 2023), self-confidence (Frahidayah et al., 2024), information on the world of work (Susilo & Ismiyati, 2020), family and environmental support (Mastur & Pramusinto, 2020), career maturity, and academic achievement (Wardoyo et al., 2024). Agustian et al. (2024) added factors of mental readiness, work attitude, discipline ethic, and effective communication. The integration of all these factors will produce a stronger predictive model.

5. CONCLUSION

Based on the results of the data analysis and discussion that have been described, this study concludes three main things which simultaneously answer the problem formulation as follows:

1. First, internship experience partially did not significantly influence the work readiness of 12th-grade Welding Engineering students at SMKN 10 Malang. This finding indicates that the level of internship experience obtained by students was not followed by a statistically significant increase or decrease in work readiness.
2. Second, work motivation has a partial positive and significant effect on students' work readiness. This finding means that the higher students' work motivation, the higher their work readiness, and vice versa.
3. Third, internship experience and work motivation simultaneously significantly influence students' work readiness. Both variables contribute significantly to work readiness, while the remainder is explained by external variables such as self-efficacy, soft skill mastery, self-confidence, family support, and information about the world of work.

The strengths of this study are its focus on welding engineering competencies, which are rarely researched, and the use of saturated sampling, which makes the entire population representative. Limitations include the relatively small sample size, requiring caution when generalizing the results; the cross-sectional design, which only captures associative relationships, not causality; and the failure to test the moderating or mediating effects of other variables. The suggestions and recommendations of this research are addressed to several parties. For SMKN 10 Malang, it is recommended to conduct a comprehensive evaluation of the internship program, especially regarding the suitability of student placement to the field of expertise, the duration of implementation, the quality of guidance from field supervisors, and a structured feedback mechanism. In addition, strengthening student work motivation needs to be prioritized through intensive career guidance services, industrial visits, motivational seminars from successful alumni, the provision of role models, and a reward system for students who demonstrate achievements in the field of welding. For future researchers, it is recommended to increase the number of samples, use a longitudinal design, add moderating variables such as self-efficacy or soft skills, and use a mixed methods approach to explore students' qualitative perceptions of the internship experience. For the Education Office, the results of this study can be used as considerations in developing policies for standardizing internship programs that are more adaptive to the characteristics of each expertise competency, especially in the field of welding engineering which has a high complexity.

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THE INFLUENCE OF APPRENTICESHIP AND WORK MOTIVATION ON THE WORK READINESS OF CLASS XII WELDING ENGINEERING STUDENTS AT SMKN 10 MALANG

Dian Putri Noorhasanah et al

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