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Research Article

The Effect of Trainig, Work Skills, and Independent Learning on Performance of Gig Workers at BALATKOP UKM Jawa Tegah

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Abstract: The competitiveness of gig workers in the digital economy era raises issues such as competency gaps with market needs and instability in the quality of gig workers' work. This study explains the influence of training, work skills, and independent learning on the performance of gig workers who participate in training programs at the Central Java Province Cooperative and SME Training Center. Therefore, this study aims to examine the influence of each variable partially and simultaneously. This study uses a quantitative approach by distributing questionnaires to the entire population or using a saturated sample of 50 gig workers participating in training at BALATKOP UKM. The data was obtained using a Likert scale questionnaire instrument compiled based on the operational definitions of the variables and analyzed using multiple linear regression analysis to test the influence of training (X2), work skills (X2), and independence (X3) on performance (Y). The results of the study show that training, job skills, and independent learning each have a positive and significant effect on gig worker performance, and simultaneously, these three variables have a 66.5% effect on performance. This synthesis of findings confirms that gig worker performance is not only determined by the quality of training programs and technical skill mastery, but also by the ability to manage the learning process independently. Therefore, the conclusion is that the development of training programs at BALATKOP UKM needs to be designed in an integrated manner to simultaneously strengthen training, work skills, and independent learning as a strategy for improving the sustainable performance of gig workers.

Keywords: Gig Worker; Independence; Performance; Skill; Training.

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1. Introduction

Unemployment remains one of the major challenges in Indonesia, especially amid rapid digital economic transformation and global uncertainty. The employment situation throughout the world, including Indonesia, experienced significant progress in early 2025. This is stated in official statistics released by the Central Statistics Agency in May 2025, which provide data showing that in February 2025, the open unemployment rate (TPT) decreased by 4.76% compared to February 2024. This significant decline indicates that the labor force has increased significantly, specifically by 0.06% (Badan Pusat Statistik, 2023). However, this figure is still very large considering that Indonesia has a population of 281.6 million. This means that there are still 13.4 million people in Indonesia who are unemployed. At the regional level, particularly in Central Java Province, the unemployment rate also decreased from 4.78%. Coupled with the increasing number of cases of workers being laid off, this has become a challenge for the nation (Safitri & Rezza, 2025). Mass layoffs have occurred in every

sector of the labor industry, such as services and hospitality, which have low job security (Corbel et al., 2022). One group of workers with low job security are those working in the gig economy, who bid for jobs and often complete work through online labor platforms (Yu et al., 2025).

With the development of technology that has now entered the digital transformation—where all aspects of our daily lives have been dominated by digital products—people now have wider access to flexible work opportunities, allowing individuals to manage their work time and place independently and not be bound by anything except professionalism with clients. (Altenried, 2024). The gig economy could lead to increasingly uncertain conditions in other labor sectors, especially in the creative services industry, which is more subjective than other fields of work (such as hospitality) and will be vulnerable to exploitation due to intense competition. (Corbel et al., 2022).

The gig economy in Indonesia has experienced significant growth in line with economic digitalization, particularly in major cities. Semarang is one of the provincial capitals that is currently on its way to becoming a metropolis with a dense population and high productivity (Sukma Ningrum & Taufiq, 2022). However, workers in the gig economy sector face a number of significant challenges. One of these challenges is that data from Statistics Indonesia shows that the number of informal workers has grown dramatically from around 2.5 million in 2020 to 9.9 million in 2024 who are covered by social security. Additionally, according to research by (Natalia & Putranto, 2023). this is a cause for concern because, according to research by (Rianty & Darma, 2025) if gig workers do not perform well, their potential to contribute to economic productivity will be limited. One way to reduce risks and improve the performance of gig workers is through training. One way to reduce risk and improve the performance of gig workers is through training. This training is an important tool for gig workers to develop technical and non-technical competencies, adapt to changing industry needs, and increase productivity. The government has tried various efforts related to improving competencies through training organized at training institutions. An example is the Cooperative and SME Training Center (BALATKOP UKM), one of which is located in Central Java Province. Balatkop is one of the Technical Implementation Units (UPT) under the Provincial Cooperative and SME Office. The function of BALATKOP UKM is to provide education and training to improve the quality and human resources in the cooperative and SME sector and to provide adequate training facilities and infrastructure. To that end, BALAKOP UKM, as a local government training provider, has great potential in helping gig workers (Mukhlisin et al., 2023). Through training programs, BALAKTOP UKM can provide opportunities for gig workers to acquire new skills, strengthen their work capacity, and improve their performance. Relevant work skills are very important for gig workers, because their jobs require flexibility, adaptability, and efficiency. In addition to technical skills, soft skills (such as communication, time management, and independent learning) are also crucial factors that enable gig workers to not only complete tasks, but also innovate and maintain the quality of their work. Along with formal training, self-directed learning is an important variable because the nature of gig work requires active participation from workers in developing themselves. Gig workers who are independent learners will be better able to take the initiative to learn about industry trends, new technologies, and more efficient work strategies without always having to rely on formal training. Self-directed learning can strengthen the impact of training, as exemplified by research conducted by (Kamila & Ramadhani, 2024) that trainees who continue to study independently tend to internalize knowledge and skills better, adapt them to the real work context, and ultimately improve their performance. In this study, gig worker performance is seen as an important indicator of labor productivity and effectiveness in the gig economy. Performance can be measured in terms of output, quantity of work, timeliness, client satisfaction, and efficiency. Good performance shows that training, job skills, and independent learning are not just theory but have a real practical impact on the quality of gig workers' jobs. Although global and local literature on gig workers has been produced, there is still little research that examines the simultaneous influence of training, job skills, and independent learning on the performance of gig workers in the context of training institutions such as the Cooperative and SME Training Center. Most studies on gig workers focus on welfare, income, or social protection, but they do not highlight the dimension of work performance as an output of increased competence through training and self-directed learning. Against this backdrop, this study is important to fill the knowledge gap and provide practical contributions to training institutions and policymakers: how can training programs at BALATKOP UKM be designed to be more effective in improving the performance of gig workers, particularly through strengthening skills and

learning independence? These three aspects are measured quantitatively using a Likert scale to ensure the validity and reliability of the data, while also testing the statistical significance of each variable relationship (Artawati et al., 2021). This study aims to fill this gap with a quantitative approach that measures the strength of influence of each variable. (Evi et al., 2022).

2. Literature Review

Research by (Tasmilah et al., 2023) aimed to determine the effect of human capital on the transition from formal to informal employment during the pandemic. This study examined five dimensions of human capital (education, training, experience, skills, and digital capabilities) using data from the 2019-2020 Indonesian National Labor Force Survey (Sakernas). Logistic regression analysis proved the significant influence of these variables on the dynamics of formal employment during the crisis. The similarity with this study is the topic of research that raises the issue of informal workers. The difference is that this study focuses on predicting the influence of human capital theory on the transition of formal workers to informal jobs during the Covid-19 pandemic, and there are no variables regarding training.

Research by (Çiğdem, 2022) aimed to explore push/pull motivations for working in the gig economy, referring to previous research on entrepreneurial motivation, a field related to gig workers. The similarity with this study is that both examine gig workers. The differences are in the research methods used and the research objectives, which explore the intrinsic/extrinsic motivational factors of gig workers, as well as the research location, which is in Turkey.

The study conducted by (Laviola et al., 2025) aims to analyze how motivation, compensation, and training affect employee performance at the Owabong tourist attraction in Purbalingga. The difference is that the scope of the study is still limited to the tourism industry with a formal work environment, while this study was conducted at BALATKOP UKM in Central Java Province, which acts as a training provider for informal workers.

Training

Training is a fundamental component in human resource capacity building. Conceptually, training is defined as a structured process to improve individuals' knowledge, skills, and attitudes in order to enhance performance (Sopanah et al., 2023). The basic theory underlying training is Becker's Human Capital Theory (Human Capital Theory) (Tasmilah, 2023) which states that investing in competency development through training will result in increased productivity. This theory was later expanded upon by Heckman in (Pratomo et al., 2024) by emphasizing the importance of needs-based and continuous training. The modern approach to training adheres to Knowles' andragogy principles in (Kisworo et al., 2022) which emphasize the unique characteristics of adult learning, including: independence in learning, utilization of experience as a basis for learning, orientation towards concrete problem solving, and readiness to learn based on practical needs. Training indicators include: a) training quality, b) training relevance, c) training intensity, and d) training support.

Work Skills

Skills are the ability to use reason, thought, ideas, and creativity in working, changing, or making something more meaningful so as to produce value from the results of that work (Panjaitan et al., 2021). ere is also another definition that defines skills as the ability to translate knowledge into practice in order to achieve the desired work results (Nur et al., 2025). here are two types of work skills, namely technical skills (hard skills) and non-technical skills (soft skills). According to Ali in (Sultan Al Fasya et al., 2022) soft skills are abilities beyond technical and academic abilities that prioritize intrapersonal and interpersonal skills. According to Barumsyah in (Setiawan Wibowo et al., 2020) hard skills are the mastery of science, technology, and technical skills related to their field of study. Then, according to Syawal in (Putri et al., 2023) hard skills are more oriented towards the development of intellectual intelligence (IQ). Unlike soft skills, which refer to intrapersonal abilities and character traits that support the way an individual works, hard skills are technical in nature and are usually directly related to specific jobs (Boere et al., 2023). There are four skill indicators, namely a) technical skills, b) communication skills, c) management skills, and d) adaptation skills.

Independence Learning

Malcolm Knowles in Du Toit-Brits, (2019) Self-directed learning is a learning method that a person uses to improve their knowledge, skills, and achievements through their own initiative in planning, implementation, and evaluation, depending on their ability to manage their learning in accordance with their autonomy, even though they may need help or advice from others later on. According to (Kruger, 2021), self-directed learning is a condition in which learners have complete control over the decision-making process related to their own learning and accept full responsibility for it, even though they may need help and advice from a teacher. According to Gerald Grow in (Bhat & Dahal, 2023) There is an SDL stage model. These stages are divided into four stages, namely :

a. Dependent Learner, Learners or students are still very dependent on instructors.
b. Interested learner, Learners begin to develop an interest in independence.
c. Involved learner, Learners begin to develop an interest in independence.
d. Self directed learner, Learners are able to set goals independently.

There are four indicators of learning independence: a) learning initiative; b) learning planning; c) learning implementation; d) learning evaluation.

Performance

According to (Nurrahma, 2025), performance is the optimal ability to achieve work goals with minimal sacrifice, while (Iqbal & Suwarto, 2019) efers to it as the achievement of organizational programs through planning strategies. Meanwhile, (Parta & Mahayasa, 2021) emphasizes performance as the result of legal, ethical, and responsible work that is influenced by skills and rewards. An effective performance appraisal process includes six steps: setting performance standards, communicating standards to employees, measuring actual performance, comparing performance with standards, discussing evaluation results with employees, and taking corrective action if necessary (Hia et al., 2023). Research by (Sulistiarini & Ismail, 2025) states that performance evaluation methods have a positive impact on employee productivity, with the customer evaluation method providing a different and objective perspective on employee performance based on customer interaction experiences. According to (Nurrahma, 2025) performance indicators are as follows: a) quality; b) quantity; c) task execution; d) responsibility.

Gig Worker

The existence of gig workers is inseparable from the growth of the gig economy. The gig economy is a freelance labor system in which companies only contract independent workers for short periods of time (Permana et al., 2022). The word gig comes from English slang meaning "to perform." In economic terms, it can mean "work for a specific period of time." The practice of the gig economy globally is a form of innovation in work mechanisms in line with advances in information technology (Alberti & Joyce, 2023).

3. Method

This study adopts a correlational research design, which is an investigative method for describing and measuring the relationship between two or more variables, using statistical analysis of a number of scores obtained (Sujarweni, 2023). A quantitative causal approach was implemented to identify cause-and-effect relationships, where there are independent variables (influencing) and dependent variables (influenced). This study aims to analyze the effect of training (X1), work skills (X2), and learning independence (X3) on the performance (Y) of gig workers who have participated in the 2025 Digital Marketing Cluster Services Program at the Central Java Province Cooperative and SME Center. The population in this study were participants in the Digital Marketing Cluster Services training at the Central Java Province Cooperative and SME Training Center. Based on data from the Central Java Province Cooperative and SME Training Center, the participants were classified as informal workers or gig workers. There were 50 training participants from various regions in Central Java. In this study, the sample taken was all 50 participants of the Digital Marketing Cluster Services training at the Central Java Provincial Cooperative and SME Training Center who met the criteria as gig workers and were selected as the saturated sample for this study. According to (Abdullah et al., 2022) A saturated sample is a sampling technique in which all members of the population are included in the sample. This study uses primary data obtained by

researchers from the original source or directly from the research site, as well as questionnaires distributed to training participants at BALATKOP UKM Central Java, with testing using a Likert scale. Data validity testing in this study used a trial of 30 respondents to test the list of questions and see whether the statements in the questionnaire filled out by the respondents were suitable or not for use in collecting data (Sujarweni, 2023). The data analysis technique in this study used inferential data analysis. The inferential statistical test used was multiple linear regression. However, prerequisite tests had to be carried out first, namely normality tests, heteroscedasticity tests, multicollinearity tests, and autocorrelation tests. After conducting thes prerequisite tests, a hypothesis test is then carried out. The hypothesis test consists of a partial regression coefficient test (t-test), a model feasibility test (f-test), and a coefficient of determination test (R^2 test). Data analysis in this study uses SPSS (Statistical Program for Social Science) v.26 for Windows software.

Research Hypothesis

H1 : There is an effect of training on the performance of gig workers at Balatkop UKM Central Java

H2 : There is an effect of work skills on the performance of gig workers at Balatkop UKM Central Java

H3 : There is an effect of independent learning on the performance of gig workers at Balatkop UKM Central Java

H4 : There is an effect of training, work skills, and independent learning on the performance of gig workers at Balatkop UKM Central Java

4. Results and Discussion

Results

Classical Assumption Test

Classical assumption testing is a statistical requirement that must be performed in multiple linear regression analysis based on ordinary least squares. According to (Bungin, 2022) to determine the accuracy of the model, several classical assumptions must be tested, namely normality testing, multicollinearity testing, heteroscedasticity testing, and autocorrelation testing.

a. Normality Test

Normality testing is a statistical procedure used to test whether the distribution of data for a variable follows or approximates a normal distribution. Normal distribution is an important requirement in parametric analysis, such as t-tests, ANOVA, or linear regression (Bungin, 2022). The steps to determine whether data is normally distributed or not can be done by testing normality using the One Sample Kolmogorov Smirnov test on the equation residuals with the testing criteria that if the probability value is <0.05, then the data is not normally distributed, and conversely, if the probability value is >0.05, then the data is normally distributed.

Table 1. Normality Test Result.

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		50
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	3.64938817
Most Extreme Differences	Absolute	.105
	Positive	.050
	Negative	-.105
Test Statistic		.105
Asymp. Sig. (2-tailed)		.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Based on the results of the normality test using the Kolmogorov Smirnov nonparametric statistical test, a significance value of 0.200 was obtained. This figure indicates that the value obtained is greater than 0.05 (sig > 0.05), so it can be said that the residual data from the variables of Training (X1), Work Skills (X2), Independent Learning (X3), and Performance (Y) are normally distributed.

b. Multikolinierity Test

Multicollinearity refers to the existence of a perfect linear relationship between some or all of the variables explaining the regression model. This test ensures that a good regression model does not have multicollinearity (Bungin, 2022). The results of the multicollinearity test are based on the tolerance value and Variance Inflation Factor (VIF). A regression model is free of multicollinearity if the VIF value is < 10 and has a tolerance value > .010. The following table shows the results of the multicollinearity test :

Table 2. Multicollinearity Test Result.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	11.539	5.447		2.118	.040		
	Pelatihan	-.042	.183	-.044	-.232	.818	.297	3.370
	Keterampilan_Kerja	.426	.200	.433	2.131	.039	.255	3.922
	Kemandirian_Belajar	.391	.182	.367	2.149	.037	.361	2.772

a. Dependent Variable: Kinerja

Based on the SPSS output results in the table above, it can be concluded that the tolerance value for the Training Variable is 0.297, and for Work Skills is 0.255. This is followed by the Independent Learning variable, which has a tolerance value of 0.361. These results indicate that the tolerance value is greater than 0.10, which means that there is no correlation between the independent variables, so this regression model is acceptable. Meanwhile, the VIF value for the Training variable is 3.370, followed by the Work Skills variable at 3.922, and then the Independent Learning variable at 2.772. These results show that all independent variables have a VIF value <10, so this regression model is good and there is no multicollinearity and the data normality requirements are met.

c. Heteroscedasticity Test

Heteroscedasticity is a condition in which the variance of the error term in a regression model is not constant (fluctuates) for all observations. This is contrary to the classical assumption of linear regression, which requires homoscedasticity (constant variance of the error term) (Bungin, 2022). The basis for the decision is that if there is no clear pattern and the points are scattered above and below zero on the Y-axis, then there is no heteroscedasticity. However, if there is a regular pattern, then heteroscedasticity has occurred. The decision criterion is that if the p-value is ≥ 0.05, then there is no heteroscedasticity; conversely, if the p-value is < 0.05, then heteroscedasticity is present.

Table 3. Heteroscedasticity Test Result.

Coefficients[a]

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	1.722	2.936		.586	.560
Pelatihan	.156	.098	.416	1.583	.120
Keterampilan Kerja	-.065	.108	-.171	-.602	.550
Kemandirian Belajar	-.065	.098	-.157	-.660	.513

a. Dependent Variable: Abs_RES

Based on the table above, the results of the heteroscedasticity test obtained a significance value for the training variable (X1) of 0.120, the work skill variable of 0.550, and the learning independence variable of 0.513. These figures indicate that the values obtained are greater than 0.05 (>0.05), so it can be concluded that there is no heteroscedasticity in the regression model in this study.

d. Autocorrelation Test

The purpose of this test is to determine whether the residuals (prediction errors) are independent (uncorrelated between observations). This study uses the Durbin Watson (DW) test, which has the following testing rules: the DW statistical value is between 0 and 4, then compare the Durbin Watson critical table (dL and dU). Below are the results of the autocorrelation test using the Durbin Watson test :

Table 4. Autocorrelation Test Result.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.719[a]	.517	.485	3.767	2.275

a. Predictors: (Constant), Kemandirian_Belajar, Pelatihan, Keterampilan_Kerja

b. Dependent Variable: Kinerja

Based on the autocorrelation test results obtained with a DW value of 2.275. Since n = 50 with K = 3, it is known that dL is 1.24 and the dU value is 1.49, obtained from the Durbin Watson table. Therefore, it can be concluded that H0 is accepted by looking at the assumptions in the Durbin Watson table dU<DW<4-dU with autocorrelation results of 1.49<2.27<2.51, so it can be concluded that there is no autocorrelation in the model.

Uji Hipotesis

a. Multiple Linear Regression Analysis

The results of multiple linear regression analysis are presented in the form of an ANOVA table. The ANOVA table is used as a basis for determining whether or not a variable influences other variables from a previously established hypothesis. The following are the results of data processing, which are illustrated in the ANOVA table:

Table 5. Multiple Linear Regression Analysis Tesr Result.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	697.416	3	232.472	16.387	.000[b]
	Residual	652.584	46	14.187		
	Total	1350.000	49			

a. Dependent Variable: Kinerja

b. Predictors: (Constant), Kemandirian_Belajar, Pelatihan, Keterampilan_Kerja

The basis for determining the decision based on the analysis results is by looking at the F-value. If the F-value is greater than the F-table (F-value < F-table), then simultaneously the independent variables affect the dependent variable or there is an effect of training, work skills, and independent learning on performance. In the table above, the F count value obtained is 16.387, then the F table value is obtained from the F table by looking at the df1 value of 3 and the df2 value of 49 at a probability of 0.05, resulting in an F table value of 2.798. Based on the F value calculation results, the F count > F table, namely 16.387 > 2.798. Then, a significance value of 0.000 < 0.05 is obtained. Therefore, it can be concluded that H0 is rejected and Ha is accepted. Thus, in this case, the variables of Training, Work Skills, and Independent Learning simultaneously or together have a positive effect on the Performance variable.

b. Multiple Linear Regression Equation

The results of the multiple linear regression equation test are presented in the Coefficients table. The table below shows that the multiple linear regression equation table presents the calculated t-value and significance value used to display the regression coefficient

and constant values in the multiple linear regression equation using the formula Y= $=\alpha+\beta 1x1+\beta 2x2+\beta 3x3$ +e… The following is an overview of the Coefficients table:

Table 6. Multiple Linear Regression Equation Test Result.

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	13.921	4.520		3.080	.003
	Pelatihan	.585	.129	.636	4.526	.000
	Keterampilan_Kerja	.775	.158	.787	4.895	.000
	Kemandirian_Belajar	.537	.150	.504	3.581	.001

a. Dependent Variable: Kinerja

The calculated t-value for the Training variable was 4.526, for the Work Skills variable was 4.895, and for the Independent Learning variable was 3.581. The basis for decision making is that if the calculated t-value > t-table, then H0 is rejected and Ha is accepted, or there is an influence of training, work skills, and independent learning on performance. The t-table value is obtained from the t-table by looking at df1, which is 3, and df2, which is 49, resulting in a t-table value of 2.014. Based on the t-count and t-table values, it is known that the t-count value is greater than the t-table value, namely 4.526 < 2.014, 4.895 > 2.014, and 3.581 > 2.014, which means that training, work skills, and independent learning have an effect on performance. Then, the significance value of the training variable is 0.000 (< 0.05), so it can be concluded that variable X1 has a significant effect on variable Y. This is followed by the significance value of the Work Skills variable, which is 0.000 (< 0.05), so it can be concluded that variable X2 has a significant effect on variable Y. Finally, the significance value of the Learning Independence variable is 0.001 (< 0.05), so it can be concluded that variable X3 has a significant effect on variable Y. Based on these results, all three variables fully influence the Performance variable (Y). The multiple linear regression equation used is as follows:

$$Y= =\alpha+\beta 1x1+\beta 2x2+\beta 3x3+e.$$

The calculation results obtained the multiple linear regression equation Y= 13,921 + 0,585 X1 + 0,775 X2 + 0,537 X3

Based on the equation above, the following conclusions can be drawn:

1) The constant value obtained is 13.921, which means that if the independent variable is 0 (constant), then the dependent variable is 13.921.
2) The regression coefficient value of the Training variable (X1) is positive at 0.585, which means that if the Training variable increases, the Performance variable will also increase, and vice versa.
3) The regression coefficient value of the Work Skills variable (X2) is positive at 0.775, which means that if the Work Skills variable increases, the Performance variable will also increase, and vice versa.
4) The regression coefficient value of the Independent Learning variable (X3) is positive at 0.537, which means that if the Independent Learning variable increases, the Performance variable will also increase, and vice versa.

c. **Coefficient of Determination (R Square**)

The results of the coefficient of determination (R Square) calculation are presented in the Model Summary table. R Square or the coefficient of determination aims to measure the percentage of influence of the variables studied in a regression model. The following are the results of the R Square test in this study.

Table 7. Coefficient of Determination Test Result.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.816[a]	.665	.643	3.135	2.270

a. Predictors: (Constant), X1, Kemandirian_Belajar, Keterampilan_Kerja
b. Dependent Variable: Kinerja

The calculation results can be obtained in the form of R values and R Square values. The R value is used to measure the strength of the simultaneous relationship between two or more independent variables (X) and the dependent variable (Y). The r value ranges from 0 to 1, where the closer it is to 1, the stronger the relationship, while the closer it is to 0, the weaker the relationship. Based on the regression analysis, the R value obtained was 0.816, which means that there is a strong relationship between the variables of Training, Work Skills, and Independent Learning on the Performance of Gig Workers at Balatkop UKM in Central Java Province.

The R Square value aims to measure the percentage of influence of the variables studied in a regression model or to determine the extent of the contribution of variable X to variable Y. Based on the table above, it is known that the contribution of the influence of the variables of Training (X1), Work Skills (X2), and Independent Learning (X2) simultaneously or together on Performance (Y) is 66.5%, while the remaining 33.5% is explained by other variables not included in this study. The results of the coefficient of determination test show that there are still other independent variables that influence the performance of gig workers who participate in training at Balatkop UKM Jawa Tengah. Therefore, further development is needed on this topic.

d. F Test (Model Feasibility Test/Simultaneous Test)

The F-test results or model suitability or simultaneity are presented in the form of an ANOVA table. The F-test is used to determine whether the independent variables together have an effect on the dependent variable. The following are the F-test results in this study :

Table 8. F Test Result.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	697.416	3	232.472	16.387	.000[b]
	Residual	652.584	46	14.187		
	Total	1350.000	49			

a. Dependent Variable: Kinerja
b. Predictors: (Constant), Kemandirian_Belajar, Pelatihan, Keterampilan_Kerja

The basis for determining the decision based on the analysis results is by looking at the F Calculated value. If the F Calculated value is greater than the F Table value (F Calculated < F Table), then simultaneously the independent variables influence the dependent variable or there is an influence of training, work skills, and independent learning on performance. In the table above, the F count value is 16.387, while the F table value is obtained from the F table by looking at the df1 value of 3 and the df2 value of 49 at a probability of 0.05, resulting in an F table value of 2.798. Based on the F value calculation, the result is F count > F table, namely 16.387 > 2.798. Then, a significance value of 0.000 < 0.05 is obtained. Therefore, it can be concluded that H0 is rejected and Ha is accepted. Thus, in this case, the variables of Training, Work Skills, and Independent Learning simultaneously or together have a positive effect on the Performance variable.

e. T Test (Partial Test)

In this study, hypothesis testing used multiple linear regression analysis through the T-test (Partial Regression Coefficient Test) based on the answers of 50 Gig Worker respondents participating in training at the Central Java Cooperative and SME Training Center (BALATKOP UKM) who had filled out a questionnaire as a basis for drawing conclusions about the existence or absence of an influence between the independent variables and the dependent variables to answer the research hypothesis.

Table 9. Partial Test Result.

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	13.921	4.520		3.080	.003
	Pelatihan	.585	.129	.636	4.526	.000
	Keterampilan_ Kerja	.775	.158	.787	4.895	.000
	Kemandirian_ Belajar	.537	.150	.504	3.581	.001

a. Dependent Variable: Kinerja

Based on the table above, the results of the T-test calculation show that the t-value for the Training variable (X1) is 4.526. Meanwhile, the t-table in this study was obtained from the t-table by calculating using the formula df = n- k -1, where the significance level (a) is 0.05, the sample size (n) is 49, and the number of independent variables (k) = 3. Thus, df = 49 – 1 = 45, so the t-table value is 2.014. Meanwhile, the significance value in the table above is 0.000<0.05. The basis for decision making is that if the significance value is less than 0.05 (<0.05) and the t-value is > t-table (for positive influence) or -t-value < -t-table (for negative influence), then Ha is accepted and H0 is rejected. Therefore, it can be concluded that the significance value of the Training variable (X1) is 0.000 < 0.05 and the t-value is in the rejection area, namely 4.526 < 2.014. This indicates that H1 is accepted and H0 is rejected.

Based on the table above, the results of the t-test calculation show that the t-value for the Work Skills variable (X2) is 4.895. Meanwhile, the t-table in this study was obtained from the t-table by calculating using the formula df = n- k -1, where the significance level (a) is 0.05, the sample size (n) is 49, and the number of independent variables (k) = 3. Thus, df = 49 – 1 = 45, so the t-table value is 2.014. Meanwhile, the significance value in the table above is 0.000<0.05. The basis for decision making is that if the significance value is less than 0.05 (<0.05) and the t-value is > t-table (for positive influence) or -t-value < -t-table (for negative influence), then Ha is accepted and H0 is rejected. With the same t-table value of 2.014, the significance value in the table above is 0.000 < 0.05. Because the significance value of the Work Skills variable (X2) is 0.000 < 0.05 and the t-count value is greater than the t-table value, namely 4.895 > 2.014, this indicates that Ha is accepted and H0 is rejected.

The results of the T-test calculation show that the calculated t-value for the Work Skills variable (X2) is 3.581. Meanwhile, the t-table in this study was obtained from the t-table by calculating using the formula df = n- k -1, where the significance level (a) is 0.05, the sample size (n) is 49, and the number of independent variables (k) = 3. Thus, df = 49 – 1 = 45, so the t-table value is 2.014. Meanwhile, the significance value in the table above is 0.000<0.05. The basis for decision making is if the significance value is less than 0.05 (<0.05) and the t-value is > t-table (for positive influence) or -t-value < -t-table (for negative influence), then Ha is accepted and H0 is rejected. With the same t-table value of 2.014, the significance value in the table above is 0.001 < 0.05. Because the significance value of the Learning Independence variable (X2) is 0.000 < 0.05 and the t-value is greater than the t-table value, namely 3.581 > 2.014, this indicates that Ha is accepted and H0 is rejected.

Discussion

H1 : The Effect of Training on the Performance of Gig Workers Participating in Training at the Cooperative and SME Training Center (BALATKOP UKM) in Jawa Tengah

The results of the study indicate that training has a significant effect on the performance of gig workers participating in training at Balatkop UKM Jawa Tengah. This is evidenced by the regression test results, which show a significance value (Sig.) of 0.000 (<0.05), thus accepting the alternative hypothesis in this study. The regression coefficient value of 0.585 shows that training has a positive effect on work readiness. A positive regression coefficient indicates that the higher the intensity or quality of training that gig workers participate in, the higher their performance will be. Interpreted more deeply, these results reflect that the training program at Balatkop UKM Central Java has succeeded in improving the performance of gig workers in terms of quality, relevance, intensity, and support. Training at Balatkop

UKM involves professional partners to provide material to participants, therefore, the quality and relevance make participants feel the benefits of the training.

Not only is material distributed, but participants are also supported by facilities ranging from comfortable rooms to complete practical tools. Methods such as discussions, workshops, field practice, and group projects create a pleasant learning atmosphere because participants are actively involved. Good classroom dynamics make learning more effective and efficient. (Wijaya & Arismunandar, 2018). This finding also supports the human capital theory, which states that investment in education and training will increase worker productivity. In the gig economy, training can be a solution and a preventive measure to avoid skill mismatches and better prepare gig workers to face the demands of a rapidly growing digital market, thereby improving the quality (in terms of output, customer service, and after-sales) and timeliness of work (Fatima & Imtiaz, 2021).

H2 : The Effect of Work Skills on the Performance of Gig Workers Participating in Training at the Cooperative and SME Training Center (BALATKOP UKM) in Jawa Tengah

The results of the study indicate that Job Skills have a significant effect on the Performance of Gig Workers at Balatkop UKM Central Java. This is evidenced by the regression test results which show a significance value (Sig.) of 0.000 (<0.05), thus accepting the alternative hypothesis in this study. The regression coefficient value of 0.775 indicates that the study has a positive effect on Gig Worker Performance. A positive coefficient value means that an increase in both hard and soft skills will significantly improve individual performance. This means that the higher the level of gig worker skills, the better the performance will be. This confirms that work skills are the main asset for independent workers who operate without supervision from anyone.

As service providers, gig workers are required to have all-in-one skills. This means that a gig worker must know how to master technical skills such as platform usage, marketing management, customer management, and continue to develop themselves in line with the rapid digital developments that occur day by day. These results validate the principle of Job Performance, where ability is the main predictor of performance success. (Rianty & Darma, 2025). Skilled workers have in-depth technical mastery, so they no longer spend time experimenting or correcting basic mistakes. High skills enable employees to work with precision, produce high-quality output, and be able to use organizational resources optimally (Sulistyorini & Sutianingsih, 2025). Therefore, these results are also supported by previous research conducted by (Mulyana et al., 2019) which states that job skills have a positive and significant effect on performance, whereby when job skills improve, performance will also improve, and conversely, when job skills decline, performance will also decline. This proves that training at Balatkop thoroughly prepares participants to adapt to possible opportunities that may arise in the future. For gig workers, job skills are a crucial factor because gig workers must be able to manage their businesses independently without a formal organizational structure. Technical skills enable them to produce quality services, communication skills support interactions with clients, management skills help with time and resource management, and adaptation skills enable quick responses to market demand changes that shift rapidly according to trends.

H3 : The Effect of Independence Learning on the Performance of Gig Workers Participating in Training at the Cooperative and SME Training Center (BALATKOP UKM) in Jawa Tengah

The results of the study indicate that learning independence has a significant effect on the performance of gig workers at Balatkop UKM Jawa Tengah, as shown by the regression test significance value of 0.001 (<0.05), thus confirming the alternative hypothesis in this study. The positive regression coefficient value of 0.537 indicates that every one-unit increase in learning independence will be followed by a corresponding increase in gig worker performance. This finding indicates that gig workers who have a high initiative to learn, are able to plan, implement, and evaluate their learning process independently, tend to produce better performance than those who are passive in developing themselves. Theoretically, this result is in line with the concept of self-directed learning, which states that individuals who are able to manage their own learning goals, strategies, and evaluations will be better able to achieve optimal performance because they have control over the process of developing their competencies (Kamila & Ramadhani, 2024).

Previous studies also reinforce this finding, one of which is a study from (Hutajulu & Hasyim, 2025) found that self-regulated learning has a significant effect on independence and

academic performance as well as applied tasks. This pattern is in line with the training characteristics at Balatkop UKM, which encourages participants to not only attend class sessions but also develop independent follow-up practices after the program ends, so that the impact of the training can be sustained and reflected in improved performance in the field. Evidence from the field shows that gig workers with high learning independence tend to be better prepared to deal with changes in platform algorithms, client demand dynamics, and competition with other service providers. Thus, the results of this study confirm that learning independence is one of the main foundations that determine the performance success of gig workers, especially in a flexible work ecosystem that demands initiative and lifelong learning skills.

H4 : The Effect of Training, Work Skills, and Independence Learning on the Performance of Gig Workers Participating in Training at the Cooperative and SME Training Center (BALATKOP UKM) in Jawa Tengah

The results of the simultaneous regression test show that training, job skills, and independent learning together have a significant effect on the performance of gig workers at Balatkop UKM Jawa Tengah, as evidenced by the significance value of the F test of 0.000 (<0.05). The coefficient of determination (Adjusted R^2) value of 0.485 leads to the conclusion that the contribution of the independent variables to the dependent variable simultaneously or collectively is 48%. This fairly high figure indicates that the proportion of gig worker performance variance can be explained by a substantial percentage of these three variables, while the rest is influenced by other factors outside the research model. This condition shows that gig worker performance is not only determined by a single aspect, but is the result of synergy between the quality of training interventions, work skill capacity, and the level of learning independence of each individual. These findings are consistent with various previous research results that emphasize the importance of an integrative approach in human resource development. (Hia et al., 2023).

The program at Balatkop UKM Central Java, a tiered training program combined with hands-on practice and post-training mentoring, provides a structured learning environment that enriches the knowledge and basic skills of gig workers. Both technical skills, such as mastery of digital platforms, marketing management, and customer management, and non-technical skills, such as communication and time management, provide gig workers with the real capacity to produce quality and competitive services. On the other hand, independent learning ensures that the development process does not stop in the classroom but continues in the form of self-directed learning that responds to changing trends and market needs. The combination of these three aspects makes gig workers better prepared to manage their businesses independently, maintain consistent service quality, and flexibly adjust their work strategies to the dynamics of demand. These findings encourage continued investment in training, honing job skills, and maintaining independent learning habits as key strategies for maintaining and improving performance amid increasingly fierce competition in the gig economy.

5. Conclusion

Based on the results of the research and discussion, it can be concluded that training, job skills, and independent learning have a significant effect on the performance of gig workers at the Central Java Province Cooperative and SME Training Center, both partially and simultaneously. The training program must be maintained and improved in quality because it has been proven to have a positive effect on performance, especially by increasing the number of practical sessions and case studies that are close to the reality of gig workers. To improve work skills, workers must regularly map their strengths and weaknesses in work skills, then develop a self-development plan that focuses on technical, communication, management, and adaptation aspects. Training organizers will be more effective if they provide special advanced training modules for improving specific skills such as small project management and professional customer service.

Independence needs to be trained continuously, so organizers are advised to include activities that foster independent learning, such as independent assignments or portfolio projects, so that participants do not stop learning when the training program is over. There is an integrative curriculum design for teaching partners who will collaborate with Balatkop UKM Jawa Tengah to create a curriculum that includes three aspects: technical material with reinforcement of work skills and the habit of independent learning, so that all three work together to improve performance.

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