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TRAINING, COMPETENCY DEVELOPMENT, AND WORKFORCE READINESS OF LOCAL WORKERS: THE MEDIATING ROLE OF HUMAN CAPITAL IN THE REBANA METROPOLITAN AREA, WEST JAVA

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ABSTRACT

Workforce readiness is a prerequisite for ensuring that local residents benefit from large-scale regional development. This study examines the effects of training and competency development on workforce readiness, with human capital as a mediating variable, among local workers in the Rebana Metropolitan Area, West Java. A quantitative explanatory design was applied using questionnaire data from 160 respondents selected through purposive sampling and analyzed with Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results show that training (β = 0.372) and competency development (β = 0.418) positively and significantly affect human capital, and that human capital significantly improves workforce readiness (β = 0.401). Human capital partially mediates the effect of training (VAF = 41.1%) and competency development (VAF = 38.9%) on workforce readiness. The model explains 56.4% of the variance in workforce readiness. The findings indicate that training and competency programs are most effective when they build the knowledge, skills, and experience that constitute human capital.

Keywords: training; competency development; human capital; workforce readiness; Rebana; PLS-SEM

INTRODUCTION

Human resources serve as a fundamental and decisive factor in determining the overall success, stability, and sustainability of regional economic development initiatives. When governments and private sectors invest in large-scale infrastructure, establish new industrial corridors, expand logistics networks, and launch commercial ventures, they generate substantial employment opportunities across multiple skill levels. However, these newly created positions and economic prospects can only deliver genuine benefits to local residents if the surrounding labor force is adequately prepared and equipped to fill them. When a significant gap exists between the qualifications demanded by emerging industries and the actual capabilities of local job seekers, regional populations risk being excluded from the economic prosperity unfolding in their immediate surroundings. Under such circumstances, business entities inevitably recruit skilled personnel from outside the region to meet operational requirements, which ultimately undermines the local redistributive promise of economic growth, deepens socioeconomic inequality, and generates frustration among resident communities (Noe, 2017).

Consequently, workforce readiness has emerged as a paramount priority within modern regional development planning and public policy frameworks. Workforce readiness is comprehensive in its scope, defined as the extent to which individuals possess the requisite technical knowledge, practical skills, professional attitudes, and overall psychological preparedness necessary to successfully enter, perform, and adapt within a contemporary work environment (Caballero et al., 2011). It encompasses not only formal educational background and specialized vocational training, but also critical soft skills such as adaptability, problem-solving, communication, and resilience. When regional policymakers prioritize human capital development alongside physical infrastructure investments, they build an adaptable workforce capable of absorbing industry demands and driving long-term regional innovation.

To achieve meaningful and lasting workforce readiness, local governments, educational institutions, and industry leaders must collaborate closely to establish highly integrated training ecosystems that carefully align educational curricula with actual labor market demands. Without such deliberate strategic alignment, regions face a significant risk of experiencing purely superficial economic growth that yields little to no localized employment gains. In these scenarios, impressive macroeconomic metrics and rising investment figures fail to translate into tangible improvements in the daily living standards or financial security of the local population. Investing in comprehensive human resource development ensures that emerging economic opportunities remain truly inclusive, effectively empowering local communities, strengthening regional labor market capacity, and fostering sustainable socio-economic progress across the entire area over the long term.

A key foundation of this strategy involves creating dynamic feedback loops between regional employers and educational institutions. When vocational schools, colleges, and universities regularly consult with industry experts to update their instructional frameworks, students gain modern technical capabilities, practical hands-on experience, and essential soft skills that directly match real-world workplace requirements. This proactive alignment prevents skill mismatches that so often lead to underemployment, high turnover, and prolonged job searches for recent graduates. Moreover, local governments play an indispensable role by acting as facilitators and enforcers, providing necessary funding, policy support, and infrastructure to sustain these educational initiatives. By incentivizing private enterprises to participate in mentorship programs, apprenticeships, and specialized training workshops, municipal leaders help bridge the persistent gap between academic theory and practical corporate application.

Furthermore, a well-developed local workforce acts as a powerful catalyst for attracting further high-quality foreign and domestic investments. Businesses are far more inclined to establish operations and expand their footprints in regions that feature a reliable, highly skilled, and adaptable talent pool, rather than relying heavily on imported labor from outside regions or abroad. This localized hiring approach creates a self-sustaining cycle of economic growth, as increased local employment directly boosts household incomes, stimulates consumer spending, and generates higher tax revenues for essential public services and regional infrastructure. Ultimately, prioritizing robust workforce readiness ensures that

economic expansion yields broad-based prosperity, transforming potential financial gains into lasting community resilience, reduced poverty, and continuous socio-economic advancement for all residents.

The Rebana Metropolitan Area in West Java is one of the largest strategic development initiatives in Indonesia. It integrates industrial estates, the Patimban seaport, Kertajati international airport, and supporting infrastructure across several regencies and cities in the northeastern and eastern parts of the province (Kementerian Koordinator Bidang Perekonomian, 2021). The area is projected to absorb millions of workers in the coming years (ANTARA News, 2023) and is positioned as a new engine of national economic growth (Kementerian Koordinator Bidang Perekonomian, 2025).

West Java Province faces several labor market challenges related to unemployment, human resource quality, and the alignment of workforce competencies with industry demands. According to data from Statistics Indonesia (Badan Pusat Statistik/BPS) of West Java Province, the Open Unemployment Rate (OUR) was recorded at 8.31% in August 2022, declining to 7.44% in August 2023 and further to 6.75% in August 2024. Despite this downward trend, continued attention is needed to develop a skilled and competent workforce capable of meeting the evolving demands of the industrial sector.

In the context of the Rebana region, which encompasses Subang, Indramayu, Majalengka, Cirebon, Kuningan, and Sumedang Regencies, as well as Cirebon City, the development of industrial estates and regional economic activities requires a workforce equipped with competencies that align with the needs of businesses and industries. An analysis of the educational attainment of employed individuals is therefore essential to assess human resource readiness and the capacity of the local workforce to support the region's ongoing economic transformation.

Training and competency development are widely regarded as the main instruments for narrowing the gap between workers' capabilities and labor market demands. Human capital theory argues that investment in education, training, and skills raises individual productivity and economic value (Becker, 1993; Schultz, 1961). Empirical studies have linked training and internship programs to work readiness among students and graduates (Putri & Anatriani, 2025; Wilopo et al., 2025; Zainuddin et al., 2025), and have shown that competency-based learning enhances employability (Rahmaningtyas et al., 2025). However, these studies mostly focus on students, university graduates, or employees of a single organization, and they generally test training or competency effects directly. Little is known about *how* training and competency development translate into readiness among local workers in a regional development corridor, and whether the accumulated human capital of workers is the mechanism that carries this effect.

This study addresses that gap. It integrates training, competency development, human capital, and workforce readiness in a single mediation model and tests it on local workers in the Rebana Metropolitan Area. The study makes three contributions. First, it moves the analysis of workforce readiness from the educational setting to a regional development setting. Second, it separates the effects of training and competency development, which are often treated as interchangeable. Third, it tests human capital as an explicit mediating mechanism and classifies the type of

mediation. The research questions are: (1) Do training and competency development affect human capital? (2) Does human capital affect workforce readiness? (3) Does human capital mediate the effects of training and competency development on workforce readiness?

LITERATURE REVIEW

Human capital theory conceptualizes the knowledge, skills, and experience of individuals as a form of capital that is accumulated through deliberate investment, notably education and on-the-job training, and that yields returns in the form of higher productivity and earnings (Schultz, 1961; Becker, 1993). Within this logic, training and competency development are *investments*, whereas human capital is the *stock* that results from them, and readiness for work is one of the returns that the stock generates. This distinction between investment, stock, and return provides the theoretical basis for treating human capital as a mediator in the present study.

Workforce readiness (also termed work readiness or job readiness) refers to the extent to which individuals possess the attributes that make them prepared to succeed in the workplace, including technical competence, personal characteristics, organizational awareness, and social intelligence (Caballero et al., 2011). In this study the term *workforce readiness* is used consistently to describe the preparedness of local workers to enter and perform in industrial employment. Readiness is not merely the possession of skills but also confidence, adaptability, and understanding of workplace norms.

Training represents a planned, structured, and systematic effort undertaken by organizations and academic institutions to facilitate the acquisition of essential job-related knowledge, practical skills, and professional behaviors among workforce participants. Within modern organizational strategy, training functions not merely as a temporary instructional activity, but rather as an essential investment designed to build sustainable human capital, improve operational efficiency, and elevate overall performance across various sectors. The primary goal of any well-crafted training initiative is to bridge existing competency gaps, enabling individuals to adapt seamlessly to evolving industry standards, technological advancements, and operational challenges.

The ultimate effectiveness of any organizational training program relies on a combination of critical factors that directly influence learning outcomes and skill retention. First and foremost, the relevance and accuracy of the instructional content serve as the foundation of training success, ensuring that the material presented directly addresses real-world workplace requirements. Furthermore, the overall quality, expertise, and pedagogical capabilities of the instructors play a decisive role in delivering concepts clearly, engaging participants, and facilitating meaningful dialogue during sessions. Equally critical is the strategic selection and suitability of instructional methods, which must be carefully aligned with the learning objectives and the specific profiles of the participants, whether through hands-on practical exercises, interactive workshops, or digital learning modules. Additionally, providing an adequate duration for instruction and offering proper physical or virtual facilities significantly enhances the overall learning experience, giving participants the necessary space and time to thoroughly absorb and practice new capabilities.

When training programs are meticulously designed and effectively transferred into daily job routines, they generate transformative benefits for both individual employees and broader organizational ecosystems. Effective training directly reduces skill gaps by equipping workers with updated competencies, thereby enhancing individual productivity, reducing operational errors, and fostering workplace confidence. From a broader economic perspective, aligning worker capabilities with dynamic labor market demands ensures that organizations remain competitive, innovative, and resilient in the face of continuous market shifts. Ultimately, systematic training establishes a robust bridge between potential and performance, driving long-term organizational productivity while simultaneously supporting career development and employment sustainability across the modern workforce.

Competency development is the continuous process through which individuals acquire and strengthen the knowledge, skills, and behavioral attributes required for effective performance (Boyatzis, 2008; Spencer & Spencer, 1993). Whereas training is typically a time-bound program, competency development is a longer process that includes practice, assessment, certification, and the formation of work attitudes. The two constructs are related but distinct: training is an external intervention, and competency development reflects the individual's own progression in competence. Competency development is thus also a strategic factor in institutional competitiveness and employability (Widana et al., 2025).

Human capital is the accumulated knowledge, skills, competencies, and experience of individuals that increase their productivity and economic value (Becker, 1993). In this study it is operationalized from the perspective of the individual worker: relevant knowledge, practical skills, work experience, learning and adaptive capacity, and the perceived economic value of one's abilities. Human capital is distinct from competency development in that it represents the overall stock of productive capacity, of which competencies are one source.

Training and human capital. Training transfers knowledge and skills and provides practical experience, which are the core components of human capital (Becker, 1993; Noe, 2017). Workers who receive relevant and well-delivered training therefore accumulate more human capital. H1: Training has a positive and significant effect on human capital.

Competency development and human capital. As individuals strengthen their competencies through practice, assessment, and certification, their stock of productive knowledge and skills increases (Boyatzis, 2008). H2: Competency development has a positive and significant effect on human capital.

Human capital and workforce readiness. Workers with higher human capital are better equipped, more confident, and more adaptable, and therefore more prepared to enter and perform in employment (Becker, 1993; Caballero et al., 2011). H3: Human capital has a positive and significant effect on workforce readiness.

Mediating role of human capital. If training and competency development increase human capital (H1, H2) and human capital increases readiness (H3), then part of the effect of the two investments on readiness is expected to operate through human capital. H4: Human capital mediates the relationship between training and workforce readiness. H5: Human capital mediates the relationship between competency development and workforce readiness.

Direct effects. Training and competency development may also affect readiness directly, for example by building confidence and familiarity with workplace routines independent of the knowledge accumulated (Putri & Anatriani, 2025; Wilopo et al., 2025). Testing the direct effects is necessary to determine whether mediation is partial or full (Zhao et al., 2010). H6: Training has a positive and significant direct effect on workforce readiness. H7: Competency development has a positive and significant direct effect on workforce readiness.

Figure 1 summarizes the conceptual framework. Training (X1) and competency development (X2) are the independent variables, human capital (M) is the mediator, and workforce readiness (Y) is the dependent variable.

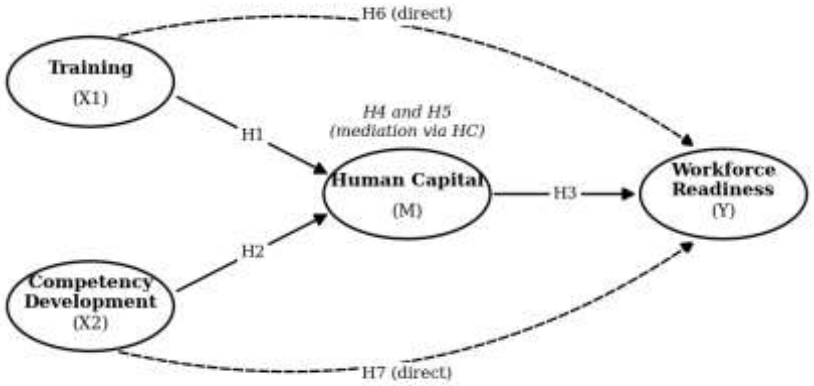


Figure 1. Conceptual framework and hypotheses

RESEARCH METHOD

This study employs a quantitative explanatory design to test causal relationships among training, competency development, human capital, and workforce readiness. A cross-sectional survey was used and the data were analyzed with PLS-SEM, which is suitable for testing complex mediation models, for prediction-oriented research, and for models with latent constructs and moderate sample sizes (Hair et al., 2019).

The population consists of local workers and job seekers residing in the Rebana Metropolitan Area, West Java, The Rebana region, located in West Java Province, Indonesia, encompasses six regencies—Subang, Indramayu, Majalengka, Cirebon, Kuningan, and Sumedang—and one municipality, Cirebon City. Based on population data from Statistics Indonesia (Badan Pusat Statistik, BPS), the combined population of these seven administrative areas provides a substantial demographic foundation for regional economic development. As one of West Java's strategic economic growth areas, the Rebana region is characterized by industrial expansion, infrastructure development, and increasing demand for a skilled workforce. These demographic and economic characteristics highlight the importance of strengthening human capital development and aligning workforce competencies with evolving labor market requirements.

Respondents were selected using purposive sampling based on three criteria: (1) holding legal residence in the study area, (2) having participated in at least one training or competency development program within 2025, and (3) working in, or seeking employment in, industrial, logistics, or supporting sectors in the area. A total

of 160 valid responses were obtained from 200 distributed questionnaires (response rate 80%. The sample size exceeds the minimum of 77 cases required to detect a medium effect ($f^2 = 0.15$) with a power of 0.80 and $\alpha = 0.05$ for the model's maximum of three predictors (G*Power), and it also satisfies the "ten times" rule of thumb (Hair et al., 2022).

Data were collected between July and August 2026 using a structured questionnaire distributed [online and face to face]. Respondents gave informed consent and were assured of anonymity. All indicators were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The instrument comprises 21 items across four constructs (Table 1

Table 1. Operationalization of variables and indicators (suggested items – adjust to your questionnaire)

Variable	Code	Indicator (statement)
Training (TRN)	TRN1	Training material matched the skills required in the workplace
	TRN2	Instructors had adequate expertise and practical experience
	TRN3	Training methods (practice, simulation, mentoring) were effective
	TRN4	Training duration and schedule were adequate
	TRN5	Training facilities and equipment supported learning
Competency Development (CD)	CD1	I have improved my job-related knowledge
	CD2	I have improved my technical skills in my field
	CD3	I have improved my communication and teamwork skills
	CD4	I have developed discipline, responsibility, and work ethic
	CD5	My competencies have been assessed or certified
Human Capital (HC)	HC1	I possess knowledge relevant to industrial job requirements
	HC2	I have practical skills that can be applied directly at work
	HC3	I have work or practical experience relevant to industry
	HC4	I can learn new things and adapt quickly
	HC5	I believe my abilities can increase my productivity and income
Workforce Readiness (WR)	WR1	I am confident about performing the tasks required in a job
	WR2	I can solve work-related problems independently

Variable	Code	Indicator (statement)
	WR3	I can communicate effectively with colleagues and supervisors
	WR4	I understand workplace rules, procedures, and safety
	WR5	I can work in a team and adapt to a work environment
	WR6	I am mentally and physically prepared to start working in industry

Note. All items use a five-point Likert scale. Indicator content for WR follows the four domains of the Work Readiness Scale (Caballero et al., 2011).

Data were analyzed using SmartPLS 4.x. The measurement model was evaluated through indicator loadings (≥ 0.70), Cronbach's alpha and composite reliability (≥ 0.70), average variance extracted (AVE ≥ 0.50), and discriminant validity using the Fornell–Larcker criterion (Fornell & Larcker, 1981) and the heterotrait–monotrait ratio (HTMT < 0.85; Henseler et al., 2015). The structural model was evaluated through inner collinearity (VIF < 3.3), the coefficient of determination (R^2), effect size (f^2; 0.02, 0.15, and 0.35 for small, medium, and large effects; Cohen, 1988), predictive relevance ($Q^2 > 0$), and the standardized root mean square residual (SRMR < 0.08). Significance was tested by bootstrapping with 5,000 subsamples (two-tailed, $\alpha = 0.05$) and bias-corrected 95% confidence intervals. The mediation effects were assessed using the specific indirect effects, and the type of mediation was classified following Zhao et al. (2010); the variance accounted for (VAF = indirect/total effect) was reported as a supplementary indicator (Hair et al., 2022). Common method bias was examined through the full collinearity VIF test (Kock, 2015).

RESULTS

Table 2 presents the profile of the 160 respondents. Most respondents are male (61.3%), aged 25–34 years (45.0%), and hold a senior high or vocational school certificate (55.0%). The respondents are spread across six regencies of the Rebana area, and the most common type of training attended is technical vocational training (38.8%). This profile is consistent with the target population of local workers in the early stage of industrial development.

Table 2. Respondent characteristics (n = 160)

Characteristic	Category	Frequency	Percentage
Gender	Male	98	61.3%
	Female	62	38.8%
Age (years)	18–24	41	25.6%
	25–34	72	45.0%
	35–44	32	20.0%
	≥ 45	15	9.4%
Education	Junior high school	6	3.8%
	Senior high / vocational school	88	55.0%
	Diploma (D3)	24	15.0%

Characteristic	Category	Frequency	Percentage
	Bachelor's degree (S1)	42	26.3%
Regency / city	Majalengka	34	21.3%
	Subang	31	19.4%
	Indramayu	29	18.1%
	Cirebon	24	15.0%
	Sumedang	22	13.8%
	Kuningan	20	12.5%
Type of training attended	Technical vocational training	62	38.8%
	Industry/company-based training	41	25.6%
	Competency certification program	33	20.6%
	Soft skills / entrepreneurship training	24	15.0%

Descriptive Statistics

Table 3 shows the descriptive statistics of the indicators. The mean scores of the four constructs are 3.98 for training, 4.03 for competency development, 4.01 for human capital, and 4.05 for workforce readiness. Using the interval method (range 1.00–5.00 divided into five classes of 0.80), all constructs fall in the "high" category (3.41–4.20). Respondents rated the quality of training facilities and the adequacy of training duration as the lowest among training indicators (TRN4 and TRN5), and the certification of competencies (CD5) as the lowest among competency indicators, which points to areas for improvement of the programs.

Table 3. Descriptive statistics and outer loadings

Indicator	Mean	SD	Outer loading	t-statistic	Category
TRN1	4.14	0.71	0.821	17.66	High
TRN2	4.06	0.74	0.793	15.91	High
TRN3	3.97	0.78	0.768	14.53	High
TRN4	3.84	0.82	0.742	13.26	High
TRN5	3.91	0.77	0.715	12.08	High
CD1	4.19	0.66	0.812	17.07	High
CD2	4.08	0.72	0.789	15.68	High
CD3	3.99	0.75	0.836	18.71	High
CD4	4.12	0.70	0.754	13.83	High
CD5	3.78	0.88	0.728	12.63	High
HC1	4.05	0.71	0.784	15.40	High
HC2	4.01	0.69	0.826	18.00	High

Indicator	Mean	SD	Outer loading	t-statistic	Category
HC3	3.88	0.80	0.751	13.68	High
HC4	4.15	0.68	0.803	16.51	High
HC5	3.96	0.74	0.739	13.12	High
WR1	4.02	0.73	0.771	14.69	High
WR2	3.94	0.76	0.805	16.63	High
WR3	4.10	0.69	0.748	13.54	High
WR4	4.16	0.67	0.792	15.85	High
WR5	4.08	0.70	0.826	18.00	High
WR6	3.99	0.77	0.731	12.76	High

Note. All loadings are significant at $p < 0.001$. Category based on the interval method: 3.41–4.20 = high.

Measurement Model Evaluation

All outer loadings range from 0.715 to 0.836, exceeding the 0.70 threshold (Table 3). Table 4 shows that Cronbach's alpha ranges from 0.878 to 0.902, composite reliability from 0.878 to 0.903, and AVE from 0.591 to 0.616. All values exceed the recommended thresholds, indicating adequate convergent validity and internal consistency reliability.

Table 4. Construct reliability and convergent validity

Construct	Items	Cronbach's α	Composite reliability (ρc)	AVE
Training (TRN)	5	0.878	0.878	0.591
Competency Development (CD)	5	0.888	0.889	0.616
Human Capital (HC)	5	0.886	0.887	0.610
Workforce Readiness (WR)	6	0.902	0.903	0.608

Discriminant validity is shown in Table 5. The square root of each construct's AVE (diagonal) is larger than its correlations with the other constructs (Fornell–Larcker), and all HTMT values are below 0.85 (maximum = 0.688), confirming that the four constructs are empirically distinct. This result is important because training, competency development, and human capital are conceptually close. The full collinearity VIFs of all constructs ranged from 1.64 to 1.92, below the 3.3 threshold, indicating that common method bias is unlikely to be a serious concern (Kock, 2015).

Table 5. Discriminant validity: Fornell–Larcker criterion (left) and HTMT (right)

FL	TRN	CD	HC	WR	HTMT	TRN	CD	HC	WR
TRN	**0.769**				TRN				
CD	0.520	**0.785**			CD	0.520			
HC	0.589	0.611	**0.781**		HC	0.590	0.612		
WR	0.587	0.619	0.688	**0.780**	WR	0.587	0.620	0.688	

Note. Bold diagonal values are the square roots of AVE. TRN = training; CD = competency development; HC = human capital; WR = workforce readiness.

Structural Model Evaluation

Table 6 reports the structural model assessment. The inner VIF values range from 1.37 to 1.90, so collinearity among predictors is not a concern. Training and competency development explain 47.5% of the variance in human capital (R^2 = 0.475), and training, competency development, and human capital jointly explain 56.4% of the variance in workforce readiness (R^2 = 0.564), which represents moderate explanatory power (Hair et al., 2019). The Q^2 values (0.312 for HC and 0.358 for WR) are above zero, supporting predictive relevance. The SRMR is 0.049, below the 0.08 cut-off, indicating an acceptable model fit. In terms of effect size, competency development (f^2 = 0.243) and training (f^2 = 0.192) have medium effects on human capital, and human capital has a medium effect on workforce readiness (f^2 = 0.194), whereas the direct effects of training and competency development on readiness are small (f^2 = 0.064 and 0.093).

Table 6. Structural model assessment

Relationship / construct	VIF	f^2	R^2	Q^2
TRN → HC	1.37	0.192		
CD → HC	1.37	0.243		
Human Capital (HC)			0.475	0.312
TRN → WR	1.63	0.064		
CD → WR	1.70	0.093		
HC → WR	1.90	0.194		
Workforce Readiness (WR)			0.564	0.358
SRMR				0.049

Note. For the SRMR row the value is shown in the last column.

Hypothesis Testing

The structural paths were estimated with 5,000 bootstrap subsamples. Table 7 and Figure 2 present the direct effects, and Table 8 presents the indirect effects.

Table 7. Direct effects (path coefficients)

Hyp.	Path	β	SE	t	p	95% CI	Decision
H1	TRN → HC	0.372	0.069	5.39	< 0.001	[0.239, 0.509]	Supported
H2	CD → HC	0.418	0.066	6.33	< 0.001	[0.291, 0.549]	Supported
H3	HC → WR	0.401	0.071	5.65	< 0.001	[0.264, 0.542]	Supported
H6	TRN → WR	0.214	0.075	2.85	0.004	[0.069, 0.363]	Supported
H7	CD → WR	0.263	0.077	3.42	< 0.001	[0.114, 0.416]	Supported

Table 8. Indirect effects and type of mediation (DUMMY DATA)

Hyp.	Path	Indirect β	t	p	95% CI	Direct β	Total β	VAF	Mediation
H4	TRN → HC → WR	0.149	3.90	< 0.001	[0.075, 0.225]	0.214	0.363	41.1%	Partial (complementary)
H5	CD → HC → WR	0.168	4.22	< 0.001	[0.091, 0.247]	0.263	0.431	38.9%	Partial (complementary)

Note. VAF = indirect effect / total effect. Mediation type follows Zhao et al. (2010).

DISCUSSION

Training and human capital (H1). Training has a positive and significant effect on human capital (β = 0.372, t = 5.39, p < 0.001), so H1 is supported. Workers who judged the training material to be relevant, the instructors to be competent, and the methods to be practical reported greater knowledge, skills, and experience. This result is consistent with human capital theory, which sees training as an investment that increases the stock of productive capacity (Becker, 1993), and with evidence that well-designed training narrows skill gaps (Salas et al., 2012). In the Rebana context, the finding suggests that local training providers are able to convert programs into usable skills, although the lower scores on duration and facilities signal that program quality is not uniform.

Competency development and human capital (H2). Competency development has a positive and significant effect on human capital (β = 0.418, t = 6.33, p < 0.001), and the effect is somewhat stronger than that of training. A plausible explanation is that competency development captures the worker's own sustained progression through practice, assessment, and the formation of work attitudes, whereas training is a shorter external intervention (Boyatzis, 2008; Spencer & Spencer, 1993). This finding supports H2 and underlines that programs that stop at classroom delivery without follow-up practice and certification are less likely to build lasting human capital. The findings of this study are consistent with previous research (Rahmaningtyas et al., 2025; Widana et al., 2025), highlighting the importance of workforce competencies in improving employment readiness and aligning human capital development with industry requirements

Human capital and workforce readiness (H3). Human capital has a positive and significant effect on workforce readiness (β = 0.401, t = 5.65, p < 0.001); it is the strongest predictor of readiness in the model. Workers with greater knowledge, practical skills, experience, and adaptability feel more capable of performing job tasks, solving problems, and adjusting to the workplace, which are the core domains of work readiness (Caballero et al., 2011). The result supports H3 and the view that readiness is a *return* on accumulated human capital rather than simply a by-product of attending programs. The findings of this study are consistent with those reported by Ramaditya et al. (2025) and Zainuddin et al. (2025), suggesting that workforce competency development plays an important role in improving employee readiness and meeting evolving industry demands.

Direct effects (H6 and H7). Both training ($\beta = 0.214$, $p = 0.004$) and competency development ($\beta = 0.263$, $p < 0.001$) retain a significant direct effect on workforce readiness after human capital is controlled. Programs thus also improve readiness through channels that are not captured by the measured stock of human capital, such as increased self-confidence, familiarity with workplace procedures and safety, and professional networks.

Mediating role of human capital (H4 and H5). The indirect effects of training ($\beta = 0.149$, $t = 3.90$) and competency development ($\beta = 0.168$, $t = 4.22$) through human capital are significant, and the direct effects are also significant and of the same sign. According to Zhao et al. (2010), this pattern indicates complementary (partial) mediation. Human capital accounts for about 41.1% of the total effect of training and 38.9% of the total effect of competency development, so H4 and H5 are supported. In practical terms, programs matter not only because participants attend them, but because they build the knowledge, skills, and experience that make workers ready; programs that fail to build human capital will therefore deliver weaker readiness gains.

Theoretical and practical meaning. The results extend human capital theory to the setting of regional development by showing empirically how investments (training and competency development) become a stock (human capital) that produces a return (readiness) among local workers. For local governments, vocational training institutions, and industry in the Rebana area, the findings imply that readiness programs should be designed to build human capital explicitly, through relevant content, practice-based methods, work experience components, and competency certification, rather than being evaluated only by participation numbers.

CONCLUSION

This study examined the effects of training and competency development on workforce readiness through human capital among 160 local workers in the Rebana Metropolitan Area. Training and competency development positively and significantly affect human capital; human capital positively and significantly affects workforce readiness; and human capital partially mediates the effects of both training and competency development on readiness. The model explains 56.4% of the variance in workforce readiness. These findings confirm that readiness for work is built through the accumulation of human capital and that training and competency development are effective investments when they translate into knowledge, skills, and experience.

The study contributes to human capital theory by empirically separating investment (training and competency development), stock (human capital), and return (workforce readiness) in a regional development context, and by showing that the two investments have distinct effects. It also contributes to the work readiness literature by moving from student and graduate samples to local workers in a development corridor.

For policymakers and training providers, training should be aligned with the skills required by industries in the Rebana area, delivered by practitioner instructors, and supported with adequate facilities and sufficient duration. For employers and project managers, competency development should be treated as a long-term investment, supported by workplace practice, regular competency assessment, and

certification. Collaboration among local governments, vocational institutions, and industry partners should be strengthened so that programs are designed around actual job requirements and so that local workers can be matched with vacancies.

This study has limitations. First, the cross-sectional design limits causal inference; longitudinal or experimental designs could better capture how readiness develops over time. Second, all variables were self-reported and based on perceptions, so objective indicators such as certification outcomes or actual employment status should be added in future work. Third, purposive sampling from rebana regencies limits generalizability. Fourth, human capital was measured at the individual level and limited to knowledge, skills, experience, and adaptability; health and social capital could be incorporated. Future studies could compare regencies or sectors using multi-group analysis, test moderators such as education level or training type, and combine survey data with qualitative evidence from employers.

REFERENCES

ANTARA News. (2023, July 15). Kawasan Rebana Metropolitan Jawa Barat mampu serap 4,49 juta pekerja. https://www.antaranews.com/berita/3636822/kawasan-rebana-metropolitan-jabar-mampu-serap-449-juta-pekerja *

Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis* (3rd ed.). University of Chicago Press. *

Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of Management Development, 27*(1), 5–12.

Caballero, C. L., Walker, A., & Fuller-Tyszkiewicz, M. (2011). The Work Readiness Scale (WRS): Developing a measure to assess work readiness in college graduates. *Journal of Teaching and Learning for Graduate Employability, 2*(2), 41–54. https://doi.org/10.21153/jtlge2011vol2no2art552 *

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24.

Haryadi, R. N., Purwanto, P., Makruf, I., Khuriyah, K., & Usman, U. (2026). Pengantar Metode Penelitian Kuantitatif. *Mafy Media Literasi Indonesia*.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.

Kementerian Koordinator Bidang Perekonomian Republik Indonesia. (2021, June 8). *Percepatan pembangunan Kawasan Rebana: Integrasi infrastruktur untuk pembangunan wilayah dan pemerataan ekonomi.* https://www.ekon.go.id/publikasi/detail/3055/percepatan-pembangunan-kawasan-rebana-integrasi-infrastruktur-untuk-pembangunan-wilayah-dan-pemerataan-ekonomi *

Kementerian Koordinator Bidang Perekonomian Republik Indonesia. (2025, June 18). *Tidak hanya sebagai katalis pertumbuhan ekonomi, Kawasan Rebana diharapkan mampu menjadi mesin baru pembangunan nasional.* https://www.ekon.go.id/publikasi/detail/6439/tidak-hanya-sebagai-katalis-pertumbuhan-ekonomi-kawasan-rebana-diharapkan-mampu-menjadi-mesin-baru-pembangunan-nasional *

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration, 11*(4), 1–10.

Noe, R. A. (2017). *Employee training and development* (7th ed.). McGraw-Hill Education.

Putri, D. W., & Anatriani, N. (2025). Analisis pengaruh program magang dan pelatihan terhadap kesiapan kerja mahasiswa manajemen sumber daya manusia. *Musytari: Jurnal Manajemen, Akuntansi, dan Ekonomi, 24*(12), 2281–2290. *

Rahmaningtyas, W., Joyoatmojo, S., Kristiani, K., & Murwaningsih, T. (2025). Shaping the workforce of tomorrow: A review of competence-based learning for employability enhancement. *Jurnal Kependidikan, 9*(3). https://doi.org/10.33394/jk.v9i3.8696 *

Ramaditya, M., Effendi, S., & Fitriani, D. (2025). Improving work readiness through talent management, knowledge management, and learning organizations in private universities. *Jurnal Ekonomi dan Bisnis, 26*(2). https://doi.org/10.24914/jeb.v26i2.8560 *

Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The science of training and development in organizations: What matters in practice. *Psychological Science in the Public Interest, 13*(2), 74–101.

Schultz, T. W. (1961). Investment in human capital. *The American Economic Review, 51*(1), 1–17.

Spencer, L. M., & Spencer, S. M. (1993). *Competence at work: Models for superior performance.* John Wiley & Sons. (the draft cited 2008; verify the edition used)

Widana, I. G., Heryanda, K. K., & Telagawathi, N. L. W. S. (2025). Building institutional competitiveness through training, career development, and motivation. *International Journal of Economics Development Research, 6*(3). https://doi.org/10.37385/ijedr.v6i3.7890 *

Wilopo, C. C., Arianto, A. S., Hartono, P. G., Suade, Y. K. M., & Triany, N. A. (2025). Assessing the work readiness of students: The role of internship experience and soft skill competencies. *International Journal of Digital Entrepreneurship and Business, 6*(1), 14–30. https://doi.org/10.52238/ideb.v6i1.216 *

Yusuf, M., & Hendra, R. (2023). Pelatihan dan pengembangan sumber daya manusia (SDM) berkelanjutan. *Jurnal JUPEMA, 2*(2), 52–63. https://doi.org/10.22437/jupema.v2i2.30510 *

Zainuddin, Z., Perera, C. J., Haruna, H., & Habiburrahim, H. (2025). Unlocking workforce readiness through digital employability skills: Evidence from vocational education graduates. *Social Sciences & Humanities Open, 11*, 101625. https://doi.org/10.1016/j.ssaho.2025.101625 *

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research, 37*(2), 197–206.