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BOOSTING HUMAN CAPITAL: TRANSFORMING BOJONEGORO'S HUMAN RESOURCE CAPACITY THROUGH K3 CERTIFICATION AND BNSP COMPETENCY

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ABSTRACT

This study aims to analyse the impact of Occupational Health and Safety (OHS) training and certification on improving human resource capacity in Bojonegoro Regency. The main issue is the suboptimal utilisation of OHS training programmes in improving the competence and productivity of participants from the Department of Industry and Labour. The research is based on human capital theory, the Kirkpatrick evaluation model, and the ADKAR change model, which integrate a holistic approach to human resource development. The research method used an explanatory quantitative approach with primary data collection through questionnaires that had been tested for validity and reliability on 114 training participants using purposive sampling techniques, then analysed using descriptive analysis and simple linear regression with SPSS application. The results showed that most participants experienced a significant increase in knowledge, skills, attitudes, and motivation to apply OSH principles in the workplace. The validity, reliability, normality, and simple linear regression tests proved the effect of training on human resource capacity. The research recommendations emphasise that OSH training and certification are investment strategies that need to be continuously improved through sustainable curriculum development, sustainable evaluation mechanisms, and institutional support to ensure the transfer of knowledge to practice in the field.

1. INTRODUCTION

This study examines in depth how Occupational Safety and Health (OSH) training and certification contribute to improving the capacity and productivity of human resources in Bojonegoro Regency, with a particular focus on participants from the Department of Industry and Labour. Occupational Safety and Health is not merely a matter of protection from the risk of accidents and occupational diseases (Nugroho, Febriani, & Sudrajat, 2023), but more than that, OSH has a significant role in improving the quality of work and promoting overall organisational efficiency (Kemenaker, 2022).

Although Occupational Safety and Health (OSH) training and certification programmes are widespread in the public sector in Indonesia, as part of a systematic strategy to improve workforce competence (Nugroho et al., 2023), there are still significant gaps in research. This gap relates to the lack of quantitative studies measuring the effectiveness of these programmes by integrating three main theoretical frameworks: human capital theory, the Kirkpatrick evaluation model, and the ADKAR change approach. These three theoretical perspectives were chosen because each offers a different yet complementary perspective in understanding the impact of training. For example, human capital theory according to (Schultz, 2018) provides economic justification for training investment, the Kirkpatrick model according to (Azmy, 2023) provides a systematic evaluation tool, while ADKAR (Hiatt, 2018) explains the mechanism of behavioural change at the individual level.

In the current research gap, there is a clear lack of explanatory quantitative studies that truly measure the impact of OSH training and BNSP certification in the Indonesian public sector. This is particularly true in areas such as Bojonegoro Regency, which is currently seeking to develop its industrial sector, but where there have been few studies discussing how such training contributes to human resource development. Bojonegoro's unique socio-economic characteristics, with various challenges ranging from policy and infrastructure to work culture, make this study highly relevant and urgent. Most previous studies have been limited to descriptive aspects or have focused only on the level of satisfaction of training participants (Yudha & Modjo, 2025), without looking at how the training has had a long-term impact. In fact, understanding changes in worker behaviour, improvements in work capacity, and contributions to organisational productivity are crucial aspects to ensure that training and certification are truly effective and sustainable. In other words, this study not only fills a scientific void but also provides a strategic foundation for policy-making and human resource management practices in developing regions such as Bojonegoro.

The research question guiding this study is: To what extent do OSH training and certification affect the capacity, motivation, and productivity of human resources among participants from the Bojonegoro District Department of Industry and Labour?

The novelty of this study is based on several important and complementary aspects. First, this study successfully combines Kirkpatrick's evaluation method, ADKAR change theory, and human capital theory into a comprehensive and systematic quantitative analysis model. This approach allows for a more complete understanding of the training process and its impact from various supporting perspectives. Second, this study is based on primary data collected directly from BNSP certification training participants, reflecting real human capital investment in the context of human resource development in Indonesia's public sector. This adds to the validity and relevance of the research results because they are rooted in actual experiences and field conditions. Third, the findings are expected to provide evidence-based

recommendations that are applicable and fundamental to improving the design and implementation of OSH training in various local government agencies.

Thus, this study not only fills a gap in the literature, which has so far lacked focus on the effectiveness of local professional certification programmes, but also makes a significant contribution to the development of a more holistic, contextual, and useful training evaluation model for human resource development needs in Indonesia, particularly in Bojonegoro Regency.

Occupational Safety and Health is not merely a matter of protection from the risk of accidents and occupational diseases (Nugroho et al., 2023), but more than that, OSH has a significant role in improving the quality of work and promoting overall organisational efficiency (Kemenaker, 2022). Although Occupational Safety and Health (OSH) training and certification programmes are widespread in the public sector in Indonesia, as part of a systematic strategy to improve workforce competence (Nugroho et al., 2023), there are still significant gaps in research.

This gap relates to the lack of quantitative studies measuring the effectiveness of these programmes by integrating three main theoretical frameworks: human capital theory, the Kirkpatrick evaluation model, and the ADKAR change approach. These three theoretical perspectives were chosen because each offers a different yet complementary perspective in understanding the impact of training.

For example, human capital theory according to (Schultz, 2018) provides economic justification for training investment, the Kirkpatrick model according to (Azmy, 2023) provides a systematic evaluation tool, while ADKAR (Hiatt, 2018) explains the mechanism of behavioural change at the individual level.

Training within the framework of Human Capital theory proposed by (Schultz, 2018) is not merely viewed as an expense, but rather as a high-value strategic investment in developing human resource potential. This investment is an important foundation for increasing productivity, as it strengthens the accumulation of knowledge, skills, and competencies that are essential and relevant to the demands of daily work. (Danaeefard & Babashahi, 2021) emphasise that human resource development through training is not only about adding technical skills, but more than that, it is about creating individuals who are able to think critically, innovatively, and adaptively in the face of dynamic change. In the context of the modern economy, this type of investment provides long-term benefits that are not only felt by individuals but also have a positive impact on organisations, such as increased competitiveness, sustainable innovation, and the ability to adapt quickly to an increasingly complex and dynamic work environment. In other words, training and human resource development are one of the main instruments for ensuring the sustainability and progress of organisations amid fierce global competition (Greiner, A., & Semmler, 2024).

The Kirkpatrick Model, which has been the benchmark in training evaluation since its introduction in 1959 by Donald Kirkpatrick according to (Azmy, 2023), offers a systematic, multi-level framework for assessing the effectiveness of a training programme. This model divides evaluation into four interrelated levels. The first is participant reaction, which is how participants feel and respond to the training provided—whether the material is presented in an interesting and relevant manner. The second is the learning level, which measures the extent to which participants truly understand and master the material presented. The third is behavioural change, which tests whether participants are able to apply the knowledge they have gained in real work situations after the training is complete. And finally, organisational

results, which are the measurable real impacts on the overall performance of the organisation as a result of the training (Apriliana, S. D., & Nawangsari, 2024). With this clear structure, the Kirkpatrick model helps organisations see training not only as a formal activity, but as a strategic tool to drive change and continuous improvement.

Meanwhile, the ADKAR Model developed by (Hiatt, 2018) focuses on individual behavioural change through a comprehensive, step-by-step approach. This model emphasises that for change to be successful, an individual must go through five important stages. It begins with awareness of the need for change, which is the starting point of self-awareness that something needs to be renewed or improved. Next comes desire to participate and commit to the change, because without desire, change is unlikely to occur. The next stage is knowledge, which is understanding what needs to be done and how to change correctly. After that comes ability, which is the practical application of that knowledge in everyday actions. Finally, reinforcement is very important so that change does not only happen momentarily, but becomes an ingrained and lasting habit (Ryan, 2017). In this way, the ADKAR model emphasises that the success of training is not merely the transfer of knowledge, but how each individual can experience a comprehensive positive transformation.

Within these three main frameworks, Herzberg's two-factor theory of motivation (Michael Galanakis & Giannis Peramatzis, 2022) (Michael Galanakis and Giannis Peramatzis, 2022) provides an in-depth understanding of the role of two types of factors, namely hygiene factors and motivational factors. Hygiene factors serve to maintain basic conditions that prevent dissatisfaction, while motivational factors play a greater role in encouraging customers or training participants to feel satisfaction and enthusiasm in performing tasks. On the other hand, (Bandura, 2018) Self-Efficacy theory emphasises the importance of an individual's belief in their own ability to perform a task or face challenges. This belief not only influences how a person sees themselves, but also shapes the way they act and interact with their work and learning environment. The combination of these two theories is highly relevant in the context of training, as they explain how psychological aspects—from basic conditions to self-confidence—can be key to participants' active involvement and ability to effectively apply the knowledge they have gained in the workplace. Research even shows that high levels of self-efficacy are often closely correlated with naturally growing motivation, resilience in the face of obstacles, and an individual's success in transferring knowledge from training to real-world practice, thereby strengthening performance and continuous individual capacity development.

In terms of experiential learning, according to Kolb (Kolb, Boyatzis, & Mainemelis, 2018), it is a process that revolves through a dynamic cycle. This process begins with concrete experiences that are experienced directly, followed by deep reflection on those experiences. Next, through abstract conceptualisation, individuals are able to generalise the new understanding they have gained, then apply it through active experimentation in real situations. This cycle makes learning not just theory, but a living and evolving practice through continuous interaction between experience and thought.

In the context of workplace training, the theory of learning transfer proposed by (Baldwin & FORD, 2018) provides an understanding of how training outcomes should not merely remain as knowledge in the classroom, but must be implemented in daily tasks. The success of this transfer is influenced by factors such as participant characteristics, the quality of training materials, and a conducive work environment. Thus, effective training must pay attention to

how to facilitate the integration of new knowledge into real practice in order to improve performance.

Meanwhile, from the organisational commitment perspective, Meyer and Allen (1991) introduced three main dimensions: affective commitment, which is based on workers' emotional attachment to the organisation; normative commitment, which reflects the moral obligation to remain with the organisation; and continuance commitment, which is related to considerations of the cost of losing one's job. According to (Andreas & Aspasia, 2024), when training is carried out well and is of high quality, it not only enriches workers' skills but also strengthens their emotional bonds and moral responsibility to the organisation. In other words, valuable training can build deeper trust and loyalty, which ultimately supports the organisation's overall goals and sustainability.

The theoretical framework integrated into this methodology includes: (1) Human Capital Theory as an in-depth foundation for human resource investment through training; (2) Kirkpatrick's Training Evaluation Model to provide a programme evaluation framework; (3) ADKAR Change Model to understand the dynamics of behavioural change; (4) Two-Factor Motivation Theory, (5) Self-Efficacy Theory to analyse psychological factors; and (6) the Learning Transfer Model as a conceptual basis for analysing the application of training results. This comprehensive methodological approach will enable an in-depth analysis of the effectiveness of OSH training programmes as an instrument for human resource development in Indonesia (Ziana Walidah, 2024)(Bambang Sudarsono, 2021)(Alega, Meidianto, Pasaribu, & Ismail, 2025).

In the current research gap, there is a clear lack of explanatory quantitative studies that truly measure the impact of OSH training and BNSP certification in the Indonesian public sector. This is particularly true in areas such as Bojonegoro Regency, which is currently seeking to develop its industrial sector, but where there have been few studies discussing how such training contributes to human resource development.

Table 1. Recapitulation Data of BPJS Employment Claims in Bojonegoro for 2024

Benefit Program	Number Of Cases	Claim Amount (IDR)
Work Accident Insurance	1.078	Rp14.150.427.080
Death Insurance	461	Rp8.779.400.000
Old-Age Savings Program	14.597	Rp187.150.437.080
Pension Plan	371	Rp4.418.387.850
Unemployment Benefit	7	Rp10.104.120
TOTAL	16.845	Rp216.191.181.975

Source: BPJS Employment Bojonegoro, 2024

Based on the recapitulation of claim data presented in the table, it is clear that occupational safety issues in the Bojonegoro region remain a serious concern. Of the total social security claims realised in 2024, which reached a staggering Rp 216.19 billion, the portion for Work Accident Insurance was quite significant. Although nominally 'only' around IDR 14.15 billion or 6.55% of the total funds disbursed, this figure represents 1,078 accident incidents that occurred in the field.

More than a thousand cases in one year is not just an administrative statistic; it is a stark warning sign. On average, this means that there are around three work-related incidents every day in the industrial sector in this region. The fact that thousands of workers are still exposed to the risk of injury to the extent that they require compensation claims indicates gaps in the implementation of effective occupational safety and health (OSH) procedures. This data serves as evidence and confirms that safety certification and training in Bojonegoro is no longer merely an administrative requirement but an urgent necessity to reduce the rate of incidents that endanger human assets, particularly the trainees themselves.

The uniqueness of this study lies in several important aspects that complement each other. First, this study combines the Kirkpatrick evaluation method, ADKAR change theory, and human capital theory into a comprehensive and systematic quantitative analysis model. This approach allows for a more thorough understanding of the training process and its impact from various supporting perspectives. Second, this study is based on primary data obtained directly from BNSP certification training participants. This reflects a real investment in human resource development in the public sector in Indonesia, making the research results more valid and relevant because they are based on direct experience in the field. Third, the results of this study are expected to produce evidence-based recommendations that are applicable and fundamental for improving the design and implementation of OSH training in various local government agencies. Thus, this study not only fills a gap in the literature, which has so far lacked focus on the effectiveness of professional certification programmes at the local level, but also makes a significant contribution to the development of a more holistic, contextual, and useful training evaluation model for human resource development needs, particularly in Bojonegoro Regency.

2. METHOD

This study applies a quantitative approach with an explanatory design, which aims to test the causal relationship seen from the results of this relationship test based on Pearson's theory according to (Jabnabillah & Margina, 2022) between the independent variables (K3 Certification and BNSP Competence) and the dependent variable (Transformation of Bojonegoro's human resource capacity). This research was conducted during a two-month fieldwork period, from October to the end of November 2025. During this period, I communicated directly with the Bojonegoro Department of Industry and Labour to coordinate data collection through direct interviews with relevant parties. This approach departs from a postpositivist perspective, such as the theories of (Creswell, 2018; Sugiyono, 2017), which prioritises the collection of numerical data to test the causal relationship between variables objectively. This study examines the effect of OSH training on human resource capacity and productivity using a questionnaire that has been tested for validity and reliability beforehand, as well as normative tests to ensure that the quantitative data has a normal distribution, by applying purposive sampling to select training participants. A 5-point Likert scale was used to collect the questionnaire results. Data analysis was conducted through descriptive and inferential approaches using SPSS statistical software, with simple linear regression as the main technique to test the research hypothesis of whether there was an influential relationship. The integration of the Human Capital theory framework, Kirkpatrick Model, and ADKAR forms the basis of the relationship with the research, in accordance with the methodological recommendations for linking theory with empirical findings. This study also prioritises ethical aspects, including the disclosure of information

and data confidentiality, so that the results obtained are reliable and can be generalised to a wider population. The choice of a quantitative approach is based on the ability to collect and analyse numerical data objectively and to test this hypothesis through standardised statistical procedures (Apriliana, S. D., & Nawangsari, 2024) (Binar Ulfadari, Destri Susilaningrum, 2018).

The population in this study consisted of 114 prospective participants in Occupational Health and Safety (OHS) training who had successfully passed the administrative selection and written examination conducted by the Bojonegoro Regency Department of Industry and Labour. All of these prospective participants will later be used as respondents in this study using a purposive sampling approach (Ginting, Hubeis, & Soeboer, 2019). This technique was chosen based on considerations of ease of data access while ensuring that the respondents involved truly represent the characteristics of the population being studied. With purposive sampling, researchers can select participants who have direct experience and understanding of the K3 training programme, so that the data obtained is more relevant and valid in describing the effectiveness and impact of the training.

The criteria for respondent participants included: (1) being officially registered in the training programme; (2) having passed the administrative selection and written examination stages; and (3) being willing to actively participate in the training and complete the research instruments.

The object of this study is the BNSP-certified Occupational Safety and Health (OSH) training programme and its impact on improving human resource capacity within the Bojonegoro Regency Department of Industry and Labour. The designation of Bojonegoro Regency Department of Industry and Labour as a research location was based on careful consideration, given that this agency plays a strategic role in the implementation of an Occupational Safety and Health (OSH) training programme. In addition, the Bojonegoro Regency Department of Industry and Labour is also directly responsible for managing the workforce competency certification process through the National Professional Certification Agency (BNSP) (Yulianti Marheni, 2017), making its close relationship with OSH training highly relevant for study. By selecting this location, researchers will be able to directly explore how the training and certification are conducted in the field and how they influence the improvement of human resource capacity at the local level. Ultimately, this will provide a tangible contribution to the development of workforce quality, while supporting efforts to improve productivity and occupational safety in Bojonegoro Regency as a whole (Amri A.K, Endriks Endrianto, Ahmad Zaelani Adnan, 2024).

Data collection in this study utilised two main complementary instruments to obtain a comprehensive picture. The first instrument was a structured questionnaire designed to measure participants' perceptions, motivations, and knowledge levels regarding the Occupational Safety and Health (OSH) training programme organised by the Bojonegoro district government. This questionnaire was carefully and thoroughly compiled based on previous theories and studies, and then tested comprehensively to ensure its validity and reliability using the latest version of SPSS software (31.0.1.0) to provide accurate results. The purpose of this testing process is to ensure that the measurement results truly reflect the actual conditions, so that the data obtained is reliable and consistent. In addition, the second instrument is a documentation analysis that includes various supporting data, such as the results of training that has been carried out and programme evaluation reports. This documentation serves as an additional source of information that helps to explore the effectiveness of the training and provides an objective picture of the overall implementation of the programme.

The data analysis used in this study will be conducted using a descriptive statistical approach, which aims to provide a comprehensive overview of the characteristics of the training participants and the distribution of the various variables studied. Descriptive statistics help to understand the initial conditions and variability of the data, thereby enabling a clear mapping of the respondent profiles. Furthermore, inferential analysis is used to test the relationship and influence of OSH training on human resource capacity and productivity. Through this analysis, a deeper understanding of how training affects important aspects of work performance and production outcomes can be obtained. The entire data processing process was carried out using SPSS software. The use of SPSS also ensures that the analysis results obtained are scientifically accountable, particularly in identifying the strength and direction of the relationship between independent and dependent variables in this study (Imron, Anggara Putra, Nurlaksana Restu, Natawibawa, & Sumardiyanto, 2025).

3. RESULTS AND DISCUSSION

This study utilised questionnaires as the primary tool to explore perceptions and the impact of occupational health and safety (OHS) training and certification issued by the National Professional Certification Agency (BNSP) on improving human resource capacity in the Bojonegoro region. The respondents in this study came from various backgrounds, covering a wide range of ages, genders, and educational levels. The majority of respondents were aged between 21 and 29 years old with a bachelor's degree (S1) as the majority, indicating significant participation from young and educated workers. This study is expected to provide a clear picture of how OSH training and certification can contribute to improving the competence and readiness of workers in carrying out their duties safely and professionally, while strengthening the competitiveness of the workforce in local industries.

The questionnaire results obtained show that most training participants gave fairly high positive responses to various aspects of the research questionnaire measured in this training. The total score of all training participant responses, which included 15 questions ranging from P1 to P15, showed that key indicators such as training effectiveness, knowledge improvement, skill development, and the application of competencies obtained through K3 and BNSP certification were all in the fairly high range. This figure illustrates the strong satisfaction of the training participants with the benefits of the training programme, while also demonstrating real recognition of the quality of the programme implemented. In other words, this training not only succeeded in delivering the material well, but also had a positive impact that was directly felt by the training participants in terms of improving their competencies. This proves that the K3 and BNSP certification programmes provide significant added value to the professional development of training participants, while also boosting their confidence in applying the knowledge and skills they have learned in the workplace.

From a demographic perspective, there are several significant differences that confirm the minimum age requirement for training participants, which is 18 to 35 years old, as well as the minimum educational background requirement of a high school diploma or equivalent. Analysis of the questionnaire data reveals that almost all participants, whether grouped by age, education level, or gender, showed a positive and consistent attitude towards the implementation of this training programme. This reflects that K3 training and BNSP competency certification are not only able to reach a wide and diverse range of human

resources, but are also highly relevant and appropriate to the real needs of human resource capacity development in Bojonegoro Regency. In other words, this programme has succeeded in providing inclusive opportunities for participants from various backgrounds, thereby driving improvements in workforce quality while simultaneously promoting sustainable regional development.

From a demographic perspective, there are several significant differences that indicate a minimum age requirement of 18 to 35 years old for participants, as well as a minimum educational background equivalent to Senior High School (SLTA) or equivalent. Analysis of the questionnaire data shows that almost all groups of training participants, based on age, education, and gender, have a positive and consistent understanding of the training programme's occupational safety and health aspects. This condition confirms that K3 training and BNSP competency certification are able to reach a wide and comprehensive range of human resources and are closely related to the human resource capacity development needs in Bojonegoro Regency.

In detail, this indicator relates to knowledge of occupational safety, including knowledge of safety procedures, use of personal protective equipment, and understanding of occupational risks, which received an excellent score, reflecting the success of the training in raising awareness and improving the thinking skills of the participants. Furthermore, indicators in terms of practical competence, such as the ability to implement K3 procedures and carry out responsibilities in accordance with BNSP standards, also showed excellent and satisfactory responses. This means that in addition to theoretical knowledge, the training was able to transform the participants into competent human resources.

In addition, changes in attitude and the emergence of strong motivation to always apply OHS principles and maintain professional competency standards are clear evidence of the success of this training. Additionally, indicators in terms of practical competence, such as the ability to apply OSH procedures and carry out responsibilities in accordance with BNSP standards, also show a very good and satisfactory response. This means that, in addition to theoretical knowledge, this training has successfully transformed participants into competent human resources. Training participants demonstrated a deep awareness of the importance of occupational safety and professionalism, not only as a formal obligation, but as an integral part of personal and collective responsibility. These values have been firmly instilled in them, encouraging them to be more disciplined in implementing safety procedures and committed to maintaining consistent work quality. This reflects that training and certification programmes not only improve technical knowledge but also shape the positive character and attitude that are essential for creating a safe and competitive work environment. The first participant, who works in furniture factory production, described a very specific change in attitude. In the interview, he explained, "Before attending this training, I felt that wearing a safety helmet and safety harness was cumbersome and annoying. However, after learning about BNSP standards and seeing for myself how many risks can occur if you are not careful, wearing complete safety equipment has now become a habit. Even if my colleagues forget to wear their helmets, I remind them. Even without supervision, I feel uncomfortable working without complete safety equipment." This statement shows that the learning process has created internal awareness, not just external compliance. This means that the training has succeeded in changing participants' perceptions of work safety—from a mere administrative burden to a part of personal responsibility that they have internalised.

Table 2. Validity Test Results

Validity Test Results			
Item	R Calculate	R Table	Conclusion
P1	.438***	0,184	Valid
P2	.455***	0,184	Valid
P3	.503***	0,184	Valid
P4	.491***	0,184	Valid
P5	.428***	0,184	Valid
P6	.495***	0,184	Valid
P7	.494***	0,184	Valid
P8	.471***	0,184	Valid
P9	.572***	0,184	Valid
P10	.449***	0,184	Valid
P11	.565***	0,184	Valid
P12	.434***	0,184	Valid
P13	.488***	0,184	Valid
P14	.447***	0,184	Valid
P15	.500***	0,184	Valid

Source: Processed Research Results, 2025

In this validity test section, each question item (P1 to P15) was tested using the correlation between the item score and the total score (R Calculated) and compared with the value (R Table) of 0.184. All items had an R Calculated value greater than R Table (ranging from 0.428 to 0.572), which means that all questions in the questionnaire were considered valid and able to accurately measure the intended aspects. This shows that the instruments used in this study were appropriate and able to describe the desired measurement variables, so that the data collected were reliable and valid.

Table 3. Results of Reliability Tests

Reliability Test Results	
Cronbach's Alpha	N of Items
.764	15

Source: Processed Research Results, 2025

The reliability test using Cronbach's Alpha yielded a value of 0.764 for all 15 items in the questionnaire. This value indicates that the instrument has good internal consistency. This means that the questions in this questionnaire are interrelated and measure the same concept consistently. Thus, this value indicates that the questionnaire instrument has good internal stability.

Table 4. Results of normative testing.

Normative Test Results (One-Sample Kolmogorov-Smirnov Test)		Unstandardized Residual	
N		114	
Normal Parameters ^{a,b}	Mean	0	
	Std. Deviation	1	
Most Extreme Differences	Absolute	.097	
	Positive	.096	
	Negative	-.097	
Kolmogorov-Smirnov Z		1.035	
Asymp. Sig. (2-tailed)		.234	
Monte Carlo Sig. (2-tailed)	Sig.	.216 ^c	
	99% Confidence Interval	Lower Bound	.205
		Upper Bound	.226

Source: Processed Research Results, 2025

The results of the normative test using an Asymp. Sig. (2-tailed) value of 0.234 > 0.05 indicate that the data is normally distributed. This is an important requirement for statistical analysis techniques such as simple linear regression to be used with valid results. This normal distribution of data also indicates that the sample is representative and the research results can be generalised to the population.

Table 5. Simple Linear Regression Test Results

Simple Linear Regression Test Results						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.871	2.569		3.842	<.005
	X	.837	.079	.707	10.593	<.005

Source: Processed Research Results, 2025

The simple linear regression test examined the causal relationship between the independent variables (K3 training and BNSP certification) and the dependent variable (human resource capacity transformation). The regression coefficient (B) for the independent variable was 0.837 with a sig. value of < 0.005, meaning that this relationship was statistically significant. The Beta value (standardised coefficient) of 0.707 indicates a strong influence of training and certification on the improvement of human resource capacity. This means that the better the training and certification provided, the higher the transformation of human resource capacity that occurs. In conclusion, OSH training and certification contribute positively and significantly to the improvement of human resource capacity in Bojonegoro, and there is a significant influence of variable X on variable Y.

In **Certification and BNSP Competency**, this measures the extent to which participants understand the importance of K3 certification and BNSP competency in the context of their professional development. From the questionnaire analysis results, participants demonstrated an excellent understanding of the certification process and competency standards set by BNSP. The indicators related to BNSP certification and competency in this study include: (1) understanding of the importance of K3 certification for human resource development, (2) understanding of the competency standards set by BNSP, (3) trust in the credibility and relevance of BNSP certification, and (4) improvement of technical competencies in accordance with professional standards. The results of this analysis show that the majority of participants, around 92 %, responded positively to this aspect. Participants understand that K3 certification is not just an administrative formality, but tangible proof of their competence and expertise in applying occupational safety and health principles. BNSP certification also provides nationally recognised professional legitimacy, thereby increasing the credibility and competitiveness of participants in the job market. Meanwhile, the **Transformation of Human Resource Capacity** in Bojonegoro focuses on the direct results of the K3 training programme and BNSP certification. This transformation not only includes improving technical knowledge and skills but also changing the attitudes and mindsets of training participants in carrying out their work responsibilities. These indicators in the dimension of human resource capacity transformation include: (1) increased knowledge of occupational safety procedures and principles, (2) improved practical skills in implementing OSH, (3) increased awareness of occupational risks and how

to mitigate them, (4) changes in attitudes and work culture that prioritise safety, and (5) increased professionalism in carrying out tasks. The results of this analysis showed a very positive response from the participants, with a result score of 92% on all 5 indicators. Specifically, participants reported in the questionnaire results a significant improvement in their knowledge of safety procedures, the use of personal protective equipment, and a deeper understanding of potential risks in their work environment. This increase in knowledge translated into practical skills in applying OSH protocols in the field. Training participants began to view OSH as an investment in their own well-being and that of their colleagues. This dimension also showed an increase in professionalism, with participants becoming more responsible in carrying out their duties and more proactive in identifying potential hazards in the workplace. Thus, the dimension of certification and BNSP competency shows that OSH training has succeeded in increasing participants' awareness of the value and benefits of professional certification in developing human resource capacity. In terms of **Boosting Human Capital By transforming Bojonegoro's Human resource capacity through K3 certification and BNSP competency**, this dimension combines the concept of human capital with the transformation of human resource capacity through long-term investment. From the perspective of Schultz's Human Capital Theory (2018), K3 training is viewed as a strategic investment that increases the productivity and competitiveness of organisations and individuals in the long term. The indicators in this dimension include: (1) understanding OSH training as an investment in human resource development, (2) increased work productivity post-training, (3) increased motivation and engagement of participants in their work, (4) strengthened emotional bonds between participants and the organisation (organisational commitment), (5) improved ability to adapt to changes in the work environment, and (6) contribution to the organisation's competitive advantage. The analysis results show that participants recognise OSH training and BNSP certification as a valuable investment in their career and professional development. The majority of participants in the final results showed 90% stated that this training increased their motivation to work better and safer. This increase in motivation is reflected in their commitment to consistently apply OSH principles in their daily work. By having human resources trained and certified in OSH, Bojonegoro has become more attractive for industrial investment and sustainable economic development. This aligns with the ADKAR change model (Hiatt, 2006), which shows that the awareness and desire for change demonstrated by participants through their positive responses are followed by knowledge and implementation capabilities demonstrated through improved technical skills and competencies, as well as reinforcement through BNSP certification.

Overall, the questionnaire results, which have been analysed through validity, reliability, normative, and simple linear regression tests, clearly show that K3 certification and BNSP competency training contribute significantly to improving human resource capacity in the Bojonegoro region. These programmes have not only succeeded in enriching the knowledge and technical skills of the training participants, but have also brought about positive changes in their attitudes and motivation to work more safely, disciplined, and professionally. This can also be seen from an increase in the awareness of training participants regarding the importance of occupational safety and health, which in turn has an impact on a more conducive and productive work environment. Therefore, it is crucial for the local government and policy makers, particularly the Bojonegoro Department of Industry and Labour, to continue providing full support and encouraging the development of these

certified training initiatives. These efforts will become part of a comprehensive long-term strategy to develop human resources that are not only competent but also highly competitive and capable of facing the challenges of the modern era with confidence.

4. CONCLUSION

The results of this study prove that this programme is a significant strategic investment in improving human resource capacity. The trial involving 114 trainees showed a consistent positive response across all demographic groups, with the majority of participants giving a satisfaction score of 91.3%, indicating that the program was successful in achieving various levels of human resources and relevant to capacity building needs in the region. The main findings of this study cover three critical aspects: first, the measuring instruments used have been adequately tested for validity and reliability (R values ranging from 0.428 to 0.572 and Cronbach's Alpha of 0.764), ensuring that the data collected is reliable and accurate; second, the data is normally distributed (Asymp. Sig. 0.234 > 0.05), reinforcing the validity of using simple linear regression and strengthening the conclusion that there is a significant influence between variables; third, the simple linear regression test proves with sig. < 0.05 that K3 training and BNSP certification have a significant effect on improving human resource capacity, not just theory without practical impact. All of these results meet statistical standards, proving that the effect of training on increasing human resource capacity is significant and real, not merely theoretical. The limitations encountered were obstacles in the process of searching for supporting data from relevant agencies, such as requests for supporting data that had to wait a little longer and access to supporting data that was complicated. However, this study provides evidence that OSH training and BNSP certification can be categorised as human capital investments that yield positive results for individuals and organisations. The recommendation that can be made is that local governments, particularly the Bojonegoro Department of Industry and Labour, should continue to develop OSH training and BNSP certification programmes as an important part of a sustainable and competitive human resource development strategy. Sustainable policy and financial support is not only necessary for these programmes to run consistently, but also for the results achieved to contribute significantly to creating professional, safe and competitive human resources on a local, national and international scale, while promoting inclusive regional economic growth and accountability for worker safety. The conclusions of this study indicate that Occupational Safety and Health (OSH) training and certification, as well as the competence of the National Professional Certification Agency (BNSP), play a very important role in improving human resource capacity in Bojonegoro Regency. Through this programme, there has been a transformation not only in the level of knowledge and technical skills of the participants, but also in their attitudes and motivation to carry out their duties in a safer and more professional manner. The conclusion should summarise the main findings related to the research questions and objectives. The conclusion should avoid repeating the discussion and instead highlight key insights.

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