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Analysis of the Influence of Technology, Education, and Social Support Factors on Improving the Quality of Generation Z Human Resources In Mataram City

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Abstract

Technological development, education, and social support are considered important factors in improving the quality of human resources (HR), particularly among Generation Z, who have grown up in the digital era. This study aims to analyze the effects of technological development, education, and social support on the quality of human resources among Generation Z in Mataram City. This study employed a quantitative, associative research design. The sample consisted of 100 respondents selected using the Slovin formula and a simple random sampling technique. Data were analyzed using instrument testing, classical assumption tests, multiple linear regression analysis, t-test, F-test, and the coefficient of determination. The results indicate that, partially, technological development has a positive and significant effect on the quality of human resources (t = 6.214; sig. = 0.000 < 0.05), education has no significant effect (t = -1.736; sig. = 0.086 > 0.05), while social support has a positive and significant effect on the quality of human resources (t = 3.281; sig. = 0.001 < 0.05). Simultaneously, technological development, education, and social support have a significant effect on the quality of human resources (F = 16.477; sig. = 0.000 < 0.05). The Adjusted R Square value of 0.319 indicates that these three variables explain 31.9% of the variation in the quality of human resources. This study concludes that technological development and social support play significant roles in improving the quality of human resources among Generation Z in Mataram City, whereas education does not have a significant effect.

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1. INTRODUCTION

Human Resources (HR) are the main assets in encouraging economic growth, increasing regional competitiveness, and supporting the achievement of sustainable development. According to the theory of Human Capital put forward by Becker (1993), investment in people through education, skill development, and mastery of technology will produce individuals who are more productive, innovative, and able to contribute to economic development. Therefore, improving the quality of human resources is one of the main focuses in facing the challenges of globalization and digital transformation that is developing very rapidly (Becker, 1993; Schultz, 1961), so attention is needed to various factors that affect it, such as technology, education, and social support.

The quality of human resources is one of the important indicators in determining the

success of a region's development. According to Becker (1993), the quality of human resources is the result of investment in education, skills, experience, and the ability of individuals to adapt to change. Individuals who have good quality human resources will be more productive, innovative, and able to make greater contributions to economic and social development. In line with this opinion, Palepi and Parela (2024) states that the quality of human resources is not only measured based on the level of education, but also the ability of individuals to develop knowledge, skills, creativity, innovation, and adaptability to the development of science and technology.

Based on Human Capital theory, technology is a form of investment that can increase individual productivity if used effectively. The development of digital technology provides wider access to information, learning, training, and skill development needed in the world of work. Individuals who are able to utilize technology productively tend to have better digital competencies so that they can improve the quality of their human resources. On the other hand, the low ability to utilize technology will cause a digital skill gap that has the potential to reduce the competitiveness of the workforce (Hizam) *et al*., 2021; Mukhlisa *et al*., 2025). However, the optimal use of technology needs to be supported by education that is able to equip individuals with relevant knowledge, skills, and competencies so that technology can be used effectively in improving the quality of human resources.

Education is one of the main factors in improving the quality of human resources because it plays a role in shaping knowledge, skills, critical thinking skills, and individual readiness to face the world of work. Quality education is expected to be able to produce graduates who have competencies in accordance with industrial needs so that they can increase the competitiveness of the workforce (UNESCO, 2023). However, the success of education in improving the quality of human resources also needs to be supported by a social environment that is able to provide motivation, learning opportunities, and encouragement for individuals to develop their competencies optimally. In addition to having a positive impact on the development of individual competencies, the quality of education also needs to be able to answer changes in the needs of the world of work so that graduates have abilities that are in accordance with the demands of the times.

According to Coleman (1988), social support is part of social capital (*Social Capital*) which serves as a resource for individuals to obtain information, build trust, and expand opportunities to develop skills and achieve goals. Therefore, social support is one of the factors that plays a role in improving the quality of human resources. Support from family, peers, the educational environment, and the community can increase learning motivation, confidence, adaptability, and make it easier for individuals to obtain information and opportunities to develop their competencies (Boat) *et al*., 2022; Tuominen & Haanpää, 2022). The concept suggests that social support serves not only as a source of help, but also as an environment that supports the sustainable development of individual potential.

In its application, social support plays a role in shaping motivation, confidence, the ability to work together, and expanding individual access to information, learning, and self-development opportunities. A positive social environment will encourage individuals to be more active in developing competencies, improving adaptability, and preparing themselves to face the demands of the world of work. On the other hand, limited social support can hinder the competency development process so that it has the potential to affect the quality of human resources, especially in Generation Z (Boat) *et al*., 2022; Tuominen & Haanpää, 2022). Theoretically, technology, education, and social support are interrelated factors in shaping the quality of human resources. Understanding these three factors is important when associated with the condition of Generation Z as a generation that grows and develops in the digital era.

According to the theory *Emerging Adulthood* presented by Arnett (2000), individuals

at the age of 18–29 years are in a transition phase to adulthood characterized by identity exploration, educational completion, career preparation, and increased independence. Meanwhile, Kemph (1969) explains that individuals in the early adult stage begin to build professional identities, more mature social relationships, and readiness to enter the workforce. Therefore, the age group of 21–25 years is seen as an appropriate representation to assess the quality of human resources of Generation Z because they have more educational experience, adaptability to technology, and social interaction than younger age groups.

The selection of Mataram City as the location of the research is also based on its characteristics as the capital of West Nusa Tenggara Province which is the center of government, education, trade, services, and economic activities. This condition makes Mataram City an area that is experiencing the development of digital transformation and the need for labor is relatively higher than other regions on the island of Lombok. Therefore, the quality of Generation Z human resources in Mataram City is an important aspect that needs to be studied to find out the extent to which technology, education, and social support are able to influence the readiness of the younger generation in facing changing needs in the world of work and regional development (Mataram City Government, 2025). These developments demand the availability of quality human resources, especially Generation Z as the generation that is projected to be the main driver of development and digital transformation in the future.

In the context of Generation Z, improving the quality of human resources is increasingly important because this generation is growing up in the digital era which is characterized by very rapid technological developments. Generation Z is required not only to have academic skills, but also digital competence, critical thinking skills, communication skills, collaboration skills, and readiness to face changing needs of the ever-evolving world of work. Therefore, the quality of Generation Z's human resources is influenced by various interrelated factors, including technology, education, and social support (OECD, 2023; World Economic Forum, 2025). To get an overview of the condition of the quality of human resources in Mataram City, it is necessary to review human development indicators that can reflect the success rate of human resource development in the area, one of which is through the Human Development Index (HDI).

However, the high use of the internet has not been fully followed by adequate digital literacy skills. Research entitled The Role of Digital Literacy in Preventing the Misuse of Personal Data of Generation Z in Mataram City shows that there are still Generation Z who do not have optimal abilities in understanding digital security, personal data protection, and responsible use of technology (Okra & Abdussalam, 2025). On the other hand, the development of *Artificial Intelligence* (AI) and digitalization of the world of work require the workforce to have higher digital competencies, such as the ability to operate technology, utilize digital applications, and adapt to new technological developments (Csirt UNAIR, 2025). Therefore, technology is one of the important factors that is suspected to affect the quality of Generation Z human resources in Mataram City, because its proper use can increase competence and competitiveness in the world of work. Although mastery of technology is an important aspect in improving the quality of human resources, these abilities need to be supported by a quality education system so that individuals are able to develop competencies that suit the needs of the world of work.

Another phenomenon that is of concern is the increase in online gambling cases in West Nusa Tenggara Province. Based on the news of IDN Times NTB (2024), some victims of online gambling even had to undergo treatment at the Mutiara Sukma Psychiatric Hospital. This condition shows that the social environment and technological development need to be balanced with family support and adequate education so that Generation Z is able

to utilize technology positively and productively.

In addition to being supported by empirical phenomena that occur in Mataram City, this research is also based on the existence of gaps (*Research gap*) from the results of previous research on factors that affect the quality of human resources of Generation Z. Several studies show that technology has a positive and significant influence on improving digital competence, productivity, and work quality of Generation Z, so that it can support the development of the quality of human resources (Deswenti *et al*., 2025; Sudarso & Amaliah, 2019). Other research also found that education has a positive and significant effect on improving individual competence, knowledge, and readiness to face the world of work (Suciati & Deswarta, 2024). In addition, social support also contributes positively to the development of competence and work readiness of Generation Z through motivation, guidance, and an environment that supports the development of individual potential (Putri & Esthi, 2025). However, not all studies show consistent results. Atiku R *et al*. (2024) found that *Soft Skill* did not have a significant effect on job readiness, while Halizah (2024) show that work discipline and work environment do not have a significant effect on the performance of Generation Z. The difference in findings shows that the factors that affect the quality of Generation Z's human resources still need further testing. In addition, most previous studies have focused more on performance, productivity, or job readiness, while studies that specifically examine the influence of technology, education, and social support on the quality of Generation Z human resources, especially in the context of Mataram City, are still limited. Therefore, this study was conducted to analyze the influence of technology, education, and social support on the quality of Generation Z human resources in Mataram City.

2. METHOD

This study uses an associative quantitative approach to analyze the causal relationship between technological development (X1), education (X2), and social support (X3) on the quality of human resources (Y) in Generation Z in Mataram City. The research was carried out in six sub-districts in Mataram City, West Nusa Tenggara, during July-August 2026. The research population is Generation Z who live in Mataram City. Based on data from BPS Mataram City (2025), the population aged 20-29 years is around 70,725 people. The sample was determined using purposive sampling with the criteria of Generation Z aged 21–25 years and domiciled in Mataram City. The number of samples was determined using the Slovin formula with a 10% error rate and rounded to 100 respondents. Data collection was carried out through survey methods using Google Form online questionnaires, observations, and documentation. The research instrument uses a Likert scale of 1–5, which is very low to very high. The data used consisted of primary data obtained directly from respondents through questionnaires and secondary data derived from books, journals, documents, and previous research sources. The research variables consist of the quality of human resources as a dependent variable (Y), as well as technological development (X1), education (X2), and social support (X3) as independent variables. The variables of human resource quality are measured through indicators of knowledge, skills, and abilities. Technological development is measured through the intensity of internet use, the ability to operate digital devices, the use of technology for learning, adaptation to new technologies, the productive use of social media, the ability to evaluate digital information, and the use of digital applications. Education is measured through knowledge, skills, critical thinking, problem-solving, and lifelong learning. Meanwhile, social support is measured through the intensity of social support, the quality of social interaction, social participation, access to information and networks, and the ability to collaborate. All indicators are measured using the Likert scale. Data analysis was carried out using SPSS version 27. Testing of the instrument includes

validity and reliability tests. Validity is determined by comparing the calculated r values and r of the table, while reliability is tested using Cronbach's Alpha with a minimum limit of 0.60. Furthermore, a classical assumption test was carried out which included normality, multicollinearity, and heteroscedasticity tests. Analysis of the relationship between variables using multiple linear regression with the equation $Y = \alpha + \beta1X1 + \beta2X2 + \beta3X3 + e$. Hypothesis testing was carried out through t-test (partial), F-test (simultaneous), and determination coefficient (Adjusted R^2). The t-test is used to determine the influence of each independent variable on the dependent variable partially, while the F test is used to determine the influence of independent variables simultaneously. The significance level used was 5% ($\alpha = 0.05$). The determination coefficient is used to determine the ability of the variables of technological development, education, and social support in explaining variations in the quality of human resources.

3. RESULTS AND DISCUSSION

Test Research Instruments

Validity and Reality Tests

Table 1. Validity Test Results

Variable	Item	r Calculate > r table	Remarks
Technological Development (X1)	X1.1	0.617 > 0.196	Valid
	X1.2	0.558 > 0.196	Valid
	X1.3	0.604 > 0.196	Valid
	X1.4	0.511 > 0.196	Valid
	X1.5	0.502 > 0.196	Valid
	X1.6	0.446 > 0.196	Valid
	X1.7	0.502 > 0.196	Valid
Education (X2)	X2.1	0.368 > 0.196	Valid
	X2.2	0.431 > 0.196	Valid
	X2.3	0.505 > 0.196	Valid
	X2.4	0.567 > 0.196	Valid
	X2.5	0.503 > 0.196	Valid
Social Support (X3)	X3.1	0.681 > 0.196	Valid
	X3.2	0.671 > 0.196	Valid
	X3.3	0.701 > 0.196	Valid
	X3.4	0.700 > 0.196	Valid
	X3.5	0.699 > 0.196	Valid
Quality of Human Resources (HR) (Y)	Y1	0.453 > 0.196	Valid
	Y2	0.416 > 0.196	Valid
	Y3	0.436 > 0.196	Valid

SPSS processed data (2026)

The validity measurement criteria are based on a comparison between the calculated r value and the table r. In this study, the number of respondents was 100 people so that the degree of freedom (df) = n − 2 = 98 with a table r value of 0.196 at a significance level of 5% ($\alpha = 0.05$) was obtained. Based on the results of the validity test using SPSS, all statement items in the variables of Technology Development (X1), Education (X2), Social Support (X3), and Human Resource Quality (Y) have a value of r calculated > r table (0.196) and have a positive value, so that all statement items are declared valid and suitable for use as research instruments.

Reliability test is a test carried out to determine the level of consistency of a research instrument in measuring the variables being studied. Instruments are said to be reliable if they are able to provide consistent results when used repeatedly under the same conditions. In this study, reliability testing was performed using the Cronbach's Alpha value method to assess the reliability level of each statement item in the questionnaire (Puspasari & Puspita, 2022).

Table 2. Reliability Test Results

Variable	***Cronbach Alpha***	**Alpha Comparator**	**Remarks**
Technological Development (X1)	0.802	0,6	Reliable
Education (X2)	0.716	0,6	Reliable
Social Support (X3)	0.867	0,6	Reliable
Quality of Human Resources (Y)	0.622	0,6	Reliable

SPSS processed data (2026)

Based on the results of the reliability test using SPSS, it was shown that the variables of Technology Development (X1), Education (X2), Social Support (X3), and Human Resource Quality (Y) had a Cronbach's Alpha > value of 0.6. Value *Cronbach's Alpha* in each variable, namely Technological Development by 0.802, Education by 0.716, Social Support by 0.867, and Improvement The quality of Human Resources is 0.622. This shows that all variables have a good level of reliability so that the research instrument is declared reliable and suitable for use in the research. An instrument is declared reliable if it has a value *Cronbach's Alpha* ≥ 0.6 (Hair & Sabol, 1971).

Classic Assumption Test

Normality Test

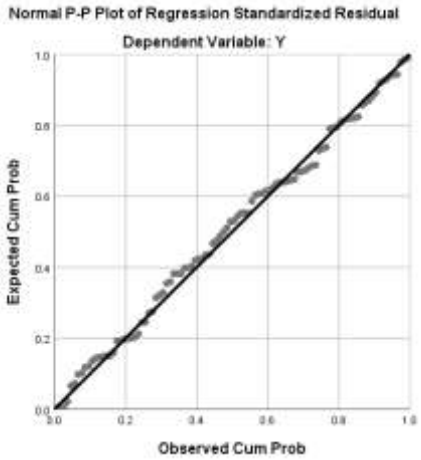

Figure 1. Normality Test Results P-P Plot

Source: SPSS processed data (2026)

Based on Figure 1, it can be seen that the dots on the Normal Probability Plot graph are spread around the diagonal line. This shows that the residues in the regression model are normally distributed.

Multicollinearity Test

Table 3. Multicollinearity

Models	Collinnearity statistics			
	Tolerance Value	Tolerance Value Comparison	VIVID	VIF Value Comparator
Technological Developments	0,869	>0.10	1,151	<10
Education	0,799	>0.10	1,252	<10
Social Support	0,914	>0.10	1,094	<10

Source: SPSS Processed Data (2026)

Technological Development (X1)

Based on the results of the multicollinearity test using SPSS, the Technology Development variable (X1) has a tolerance value of 0.869 > 0.10 and a VIF value of 1.151 < 10, so it can be concluded that multicollinearity does not occur. Thus, the Technological Development variable is suitable for use in regression models.

Education (X2)

Based on the results of the multicollinearity test using SPSS, the Education variable (X2) has a tolerance value of 0.799 > 0.10 and a VIF value of 1.252 < 10, so it can be concluded that multicollinearity does not occur. Thus, the Education variable is suitable for use in the regression model.

Social Support (X3)

Based on the results of the multicollinearity test using SPSS, the Social Support variable (X3) has a tolerance value of 0.914 > 0.10 and a VIF value of 1.094 < 10, so it can be concluded that multicollinearity does not occur. Thus, the Social Support variable is feasible to use in regression models.

Heteroscedasticity Test

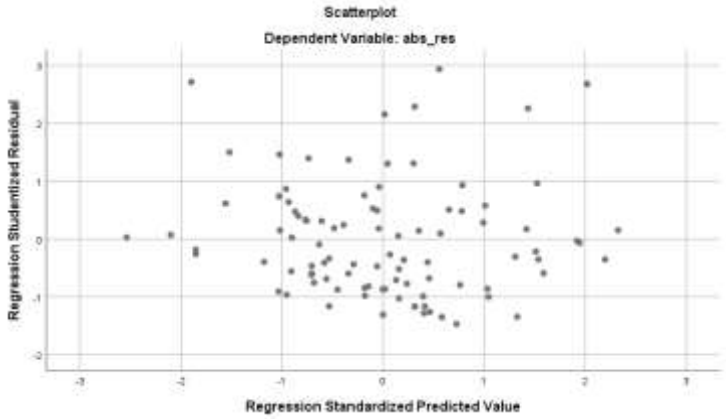

Figure 2. Scaterplot Test Results

Source: SPSS processed data (2026)

Based on Figure 2, it can be seen that the dots on the scatterplot graph are randomly spread above and below the number 0 on the Y-axis and do not form a specific pattern, such as a constricted, widened, or wavy pattern. This shows that the regression model does not experience symptoms of heteroscedasticity, so the assumption of heteroscedasticity has been fulfilled and the regression model is feasible to use for further analysis.

Multiple Linear Regression Test

Table 4. Multiple Linear Regression Test Results

Mode	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	4,558	1,461		3,121	0,002
Technological Development (X1)	0,269	0,043	0,553	6,214	0,000
Education (X2)	-0,109	0,063	-0,161	-1,736	0,086
Social Support (X3)	0,127	0,039	0,285	3,281	0,001

Source: SPSS processed data (2026)

Based on the results of the SPSS test in Table 4, it shows that the constant value obtained is 4.558, while the variable of Technology Development (X1) has a regression coefficient value of 0.269, Education (X2) has a regression coefficient value of -0.109, and Social Support (X3) has a regression coefficient value of 0.127. The multiple linear regression equation is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3$$

$$Y = 4{,}558 + 0{,}269X_1 - 0{,}109X_2 + 0{,}127X_3$$

1. A value of 4.558 is a constant or state when the variables of Human Resource Quality (Y) have not been influenced by the variables of Technological Development (X1), Education (X2), and Social Support (X3). If all independent variables are zero, then the value of Human Resource Quality (Y) is 4.558.
2. If the variable of Technological Development (X1) increases by 1 unit assuming that the variables of Education (X2) and Social Support (X3) are fixed or constant, then the variable of improving the Quality of Human Resources (Y) will increase by 0.269 units.
3. If the variable of Education (X2) increases by 1 unit assuming that the variables of Technological Development (X1) and Social Support (X3) are fixed or constant, then the variable of improving the Quality of Human Resources (Y) will decrease by 0.109 units. This is indicated by the value of the regression coefficient with a negative value (-0.109).
4. If the variable Social Support (X3) increases by 1 unit assuming that the variables of Technology Development (X1) and Education (X2) are fixed or constant, then the variable of improving the Quality of Human Resources (Y) will increase by 0.127 units.

Hypothesis Test

Partial Test (t-test)

1. Technological Development (X1). The value t of calculating the Technology Development variable based on the results of the SPSS test in Table 4.13 is 6.214. The t-value of the table with the number of respondents 100 and df = 96 was 1.985. This shows that t calculates > t table (6.214 > 1.985) and the significance value is 0.000 < 0.05, so that the Technology Development variable has a positive and significant effect on improving the Quality of Human Resources. Thus, the first hypothesis (H1) is accepted, namely that technological development (X1) has a positive and significant effect on improving the quality of Human Resources.
2. Education (X2). The value of t-calculating the Education variable based on the results of the SPSS test in Table 4.13 is -1.736. The t-value of the table is 1.985, so the value of |t calculates| < t table (1.736 < 1.985) and significance values of 0.086 > 0.05. This

shows that the Education variable does not have a significant effect on improving the Quality of Human Resources. Thus, the second hypothesis (H2) is rejected, namely Education (X2) does not have a significant effect on improving the quality of Human Resources.

3. Social Support (X3). The t-value of calculating the Social Support variable based on the results of the SPSS test in Table 4.13 is 3.281. The value of the t table is 1.985, so that t calculates > t of the table (3.281 > 1.985) and the significance value is 0.001 < 0.05. This shows that the Social Support variable has a positive and significant effect on improving the Quality of Human Resources. Thus, the third hypothesis (H3) is accepted, namely Social Support (X3) has a positive and significant effect on improving the Quality of Human Resources.

Simultaneous Test (F)

Table 5. F Test Results

Models	Sum of Squares	df	Mean Square	F	Sig.
Regression	106,643	3	35,548	16,477	0.000b
Residual	207,117	96	2,157		
Total	313,760	99			

Source: SPSS Processed Data (2026)

The results of the SPSS test showed an F value of 16.477. The F value of the table is obtained from df1 = 3 and df2 = 96, which is 2.70. This shows that F calculates > F table (16.477 > 2.70) and the significance value is 0.000 < 0.05. Therefore, it can be concluded that the fourth hypothesis (H4) is accepted, namely Technological Development (X1), Education (X2), and Social Support (X3) simultaneously have a significant effect on improving the Quality of Human Resources (Y).

Coefficient Determination Test

Table 6. Coefficient Determination Test

Models	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.583a	0,340	0,319	1,46883

Source: SPSS processed data (2026)

The determination coefficient based on the results of the SPSS test showed an R Square value of 0.340 or 34.0%. This shows that the variables of Technological Development (X1), Education (X2), and Social Support (X3) were together able to explain the variation in Human Resource Quality Improvement (Y) by 34.0%, while the remaining 66.0% were influenced by other variables outside the research model that were not studied.

The determination coefficient value of 34.0% shows that the ability of the research model to explain variations in the improvement of the quality of human resources is in the moderate category. According to Hair *et.al* (2022), in social science research, the R^2 value of 0.25 can be categorized as weak, 0.50 is categorized as moderate, and 0.75 is categorized as strong (substantial). Thus, the R^2 value of 0.340 indicates that the research model has adequate explanatory capabilities, but there are still other factors outside of technological development, education, and social support that also affect the improvement of the quality of Generation Z human resources in Mataram City.

The results also show that improving the quality of human resources is a complex phenomenon so that it is not only influenced by the three variables in this study. Other factors such as work experience, individual motivation, training, work environment,

organizational culture, economic conditions, individual characteristics, and government policies also have the potential to contribute to improving the quality of human resources. Therefore, further research is expected to include these variables so that the model's ability to explain variations in improving the quality of human resources becomes more comprehensive.

Technological developments have a positive and significant effect on improving the Quality of Human Resources (HR)

The results of this study are in line with the research conducted by Prasetyo and Trisyanti (2018) which states that technological developments in the era of the Industrial Revolution 4.0 encourage the improvement of the quality of human resources through easy access to information, increased competence, and the ability of individuals to adapt to technological changes. This research is also supported by Prasetyo and Sutopo (2018) which explains that technological developments are one of the important factors in increasing the competitiveness of human resources because they encourage the improvement of individual knowledge, skills, and abilities in dealing with the development of the world of work.

The results of this study are also in line with *Human Capital Theory* presented by Becker (1993). The theory explains that investment in the form of knowledge, skills, and individual abilities is the main capital in improving the quality of human resources. Technological developments provide opportunities for individuals to obtain information quickly, expand access to education, improve digital skills, and facilitate the completion of various academic and work activities. Therefore, the better the use of technology by a person, the higher the quality of human resources he or she has (Becker, 1993).

The results of the study show that technological developments have a positive and significant effect on the quality of human resources in line with *Human Capital Theory*. The use of digital technology allows individuals to acquire new knowledge, improve skills, accelerate the learning process, and increase work productivity. Therefore, technological development can be seen as a form of human capital investment that is able to improve individual competence so that the quality of human resources becomes better (Becker, 1993; Schultz, 1961)

Thus, the results of this study show that technological development has an important role in improving the Quality of Generation Z Human Resources in Mataram City. The higher the individual's ability to take advantage of technological developments, the better the knowledge, skills, and abilities they have. Therefore, technological development is one of the factors that can encourage the improvement of the quality of human resources to be able to face the demands of education, the world of work, and the increasingly rapid development of the times.

Education has a negative and insignificant effect on Improving the Quality of Human Resources (HR)

Based on the results of the partial test (t-test) using multiple linear regression analysis, the Education variable (X2) has a calculated t-value of -1.736 with a table t-value of 1.985, so that t calculation is obtained < t table (-1.736 < 1.985). In addition, the significance value was 0.086 > 0.05, which shows that the Education variable does not have a significant effect on the Quality of Human Resources (HR). The value of the regression coefficient with a negative value (-0.109) indicates the direction of a negative relationship, but the relationship is not statistically significant. Thus, the second hypothesis (H2) is rejected, namely that education does not have a significant effect on the quality of Generation Z human resources in Mataram City.

The results of the study show that the education variable has a negative but not significant relationship direction on the quality of Generation Z human resources in Mataram City. This finding is different from *Human Capital Theory* presented by Schultz (1961) and Becker (1993), which states that education is an investment in human capital (*Human Capital*) which is basically able to improve knowledge, skills, productivity, and the quality of human resources. However, the theory also assumes that education will provide benefits if the competencies obtained can be used optimally in the world of work. Thus, the results of this study indicate that the formal education pursued by the respondents has not fully resulted in a direct improvement in the quality of human resources because there are other factors that affect the process of utilizing these competencies.

The results of this study are not in line with *Human Capital Theory* presented by Becker (1993) which states that education is an important investment in improving the quality of human resources through the improvement of individual knowledge, skills, and abilities. In theory, the higher a person's level of education, the higher the quality of their human resources. However, the results of this study show that formal education has not been able to have a significant influence on the quality of human resources in Generation Z in Mataram City.

One of the causes that can explain this negative relationship is the occurrence of *Skill mismatch*, which is a condition when the competencies possessed by graduates are not fully in accordance with the needs of the available jobs. This condition causes investment in education not always to result in an increase in productivity and the quality of human resources. The OECD reports that about one-third of workers in various countries experience a mismatch between qualifications, skills, or educational fields with the work undertaken, thereby reducing the optimal use of human capital. As a result, individuals who have a higher level of education do not necessarily get a job that matches their competencies, so the impact of education on the quality of human resources becomes smaller (OECD, 2023).

In addition, the availability of jobs that are not fully in accordance with the competence of graduates can also cause the relationship between education and the quality of human resources to be less than optimal. Many graduates work in different fields with their educational backgrounds so that the knowledge and skills gained during formal education are not utilized to the fullest. The OECD explains that the incompatibility of the field of study with the work *(field-of-study mismatch*) can reduce productivity, job satisfaction, and reduce the benefits of education investment in improving the quality of human resources (OECD, 2023).

The results of this study are also not in line with the research of Hanushek and Woessmann (2020) which states that education has a positive influence on improving the quality of human resources through increasing individual competence and productivity. The difference in the results of this study is suspected to be due to the characteristics of the respondents, the location of the study, and different social conditions.

From perspective *Human Capital Theory*, education is a long-term investment that requires costs and *opportunity cost*, i.e., the loss of opportunities to gain work experience as individuals spend longer in formal education. The longer a person stays in education, the greater the cost of opportunities that must be sacrificed, such as work experience, professional network development, and the accumulation of practical skills. Therefore, if the job market values experience more than the length of formal education, then additional education does not necessarily provide a direct improvement in the quality of human resources. This condition may explain why the educational relationship in this study shows a negative but not significant direction (Becker, 1993; Schultz, 1961).

Based on the results of the respondents' answer descriptions, the Education variable obtained an average score of 4.105 which is included in the high category. The indicator with the highest average score is found in the statement "Education trains me to think critically in analyzing information before making decisions" with an average score of 4.19, while the lowest average score is found in the knowledge indicator of 3.98, but is still in the high category. This shows that respondents have a good perception of the benefits of education in improving knowledge, skills, critical thinking skills, problem-solving skills, and lifelong learning.

However, the high assessment of respondents on education variables has not been able to have a significant influence on the quality of human resources. This condition can be caused because the majority of the study respondents are students (55%) with an age range of 21-25 years who are still pursuing higher education. In addition, based on the characteristics of respondents, as many as 73% of respondents have the last education of high school/vocational school, because most of them are still students so that the level of formal education taken has not been completed. As a result, the benefits of education to improve the quality of human resources have not been felt optimally.

In addition to formal education, the quality of Generation Z's human resources is also influenced by other factors, such as the ability to take advantage of technological developments, experience, training, adaptability, and social support. This can be seen in the results of this study, where the variables of Technology Development and Social Support have a significant influence on the quality of human resources, while the education variable does not show a significant influence.

The current condition of Generation Z can also be one of the explanations for the research results. The development of digital technology, artificial intelligence (*Artificial Intelligence*), online learning, *Micro-credentials*, and skills-based training has led many companies to start implementing the *skills-first hiring*, which emphasizes real abilities more than formal diplomas. OECD (2024) explained that the current job market needs are increasingly oriented towards skills relevant to technological developments rather than just the level of formal education. Therefore, the quality of Generation Z's human resources is not only determined by the level of education, but also by the ability to master digital skills, practical experience, and the ability to adapt to technological changes.

Thus, the results of this study show that formal education alone is not enough to improve the quality of Generation Z human resources in Mataram City. Improving the quality of human resources requires the support of other factors, especially the ability to utilize technology and the social environment that is able to encourage the development of individual competencies. Therefore, the second hypothesis (H2) is rejected, because education has no significant effect on improving the quality of human resources.

Social Support has a positive and significant effect on Improving the Quality of Human Resources (HR)

Based on the results of the partial test (t-test) using multiple linear regression analysis, the Social Support variable (X3) has a calculated t-value of 3.281 with a table t-value of 1.985, so that t-calculated is obtained > t table (3.281 > 1.985). In addition, the significance value was 0.001 < 0.05, which showed that the Social Support variable had a positive and significant effect on the Quality of Human Resources (HR). This means that the higher the social support received by Generation Z in Mataram City, the higher the quality of human resources they have. On the other hand, if the social support received is low, the quality of human resources also tends to decrease. Thus, the third hypothesis (H3) is accepted, namely that social support has a positive and significant effect on the quality of human resources.

The results of this study are in line with the research conducted by Cohen and Wills (1985) which states that social support is able to improve the ability of individuals to deal with pressure, develop self-potential, and improve psychological well-being which contributes to improving the quality of human resources. This research is also supported by Thoits (2011) which explains that social support from family, friends, and the surrounding environment plays an important role in improving individual competence, motivation, and ability to face educational and work challenges.

The results of this study are in accordance with the *Social Support Theory* which explains that social support is one of the important factors that can improve an individual's ability to develop knowledge, skills, and abilities. The support provided by family, friends, and the social environment can increase individual confidence, motivation, and enthusiasm in learning and developing their competencies. Therefore, the higher the social support a person receives, the better the quality of human resources he or she has (Cohen & Wills, 1985).

Based on the results of the description of the respondents' answers, the Social Support variable obtained an average score of 3,462 which is included in the high category. This shows that most of the respondents feel support from family, friends, and the surrounding environment in developing knowledge, skills, and competencies. The indicator with the highest average score is found in the statement "I am able to work with others to complete tasks, share information, and achieve common goals in academic and work activities" with an average score of 3.57, while the indicator with the lowest average score is found in social participation of 3.34, although it is still in the medium category. These results show that respondents have good collaboration skills, but involvement in activities or communities that support self-development still needs to be improved.

In addition, respondents also showed that social support obtained through family, friends, and the surrounding environment helped them obtain information about education, training, and employment opportunities. This support also increases motivation to learn, work together, and develop the competencies needed to face the demands of academia and the world of work.

This finding is also strengthened by the characteristics of the research respondents who are dominated by students (55%) with an age range of 21–25 years. At that age, support from family, peers, and the educational environment has an important role in shaping academic abilities, social skills, and readiness to face the world of work. A positive social environment provides opportunities for respondents to exchange information, work together, and develop their abilities so that they can improve the quality of human resources.

Thus, the results of this study show that social support has an important role in improving the quality of Generation Z human resources in Mataram City. The higher the social support that an individual receives, the higher the knowledge, skills, and abilities they have. Therefore, support from family, friends, the educational environment, and the community is one of the important factors that can encourage the improvement of the quality of human resources so that they are better prepared to face the development of science, technology, and the world of work.

Technological Development, Education, and Social Support Simultaneously Have a Positive and Significant Effect on Improving the Quality of Human Resources (HR)

Based on the results of the simultaneous test (F Test), the F value was calculated as 16.477, while the F table was 2.70, so that F calculated > F table (16.477 > 2.70) with a significance value of 0.000 < 0.05. These results show that the variables of Technological Development, Education, and Social Support together have a significant effect on

improving the Quality of Human Resources (HR) in Generation Z in Mataram City. Thus, the fourth hypothesis (H4) is accepted.

The results of this study show that although the education variable does not have a significant effect on improving the quality of human resources, when combined with technological developments and social support, these three variables are simultaneously able to have a significant influence on improving the quality of human resources. This shows that the improvement in the quality of human resources is not only influenced by one factor, but is the result of the interconnectedness of various factors that support each other.

The results of this study are in line with the Human Capital Theory put forward by Becker (1993). The theory explains that the quality of human resources is the result of investment in various aspects, such as education, mastery of technology, experience, skills, and a supportive social environment. The combination of these various factors will increase individual knowledge, skills, abilities, and productivity so that they are able to produce quality human resources.

The findings of this study are also supported by Marlinah's research (2020) which states that technological developments play a role in improving the competence and competitiveness of human resources through the use of information technology in various activities. In addition, Puspitasari's research (2022) shows that social support from family, friends, and the surrounding environment contributes to increasing learning motivation, competency development, and improving the quality of human resources. Although education is an important factor in individual development, its effectiveness will be more optimal if it is supported by the use of technology and a good social environment.

Based on the results of the study, technological development is the variable that has the greatest influence on improving the quality of human resources with a regression coefficient value of 0.269, followed by social support of 0.127, while education has a regression coefficient of -0.109 and has no significant effect. This shows that Generation Z in Mataram City improves their quality more through the use of digital technology and support from the social environment rather than just relying on formal education.

This condition is also supported by the characteristics of respondents, most of whom are Generation Z with a productive age range and are dominated by students. This group is a generation that grew up with the development of the internet so that it is easier to use technology as a means of obtaining information, improving skills, participating in online training, and developing competencies needed in the world of work. On the other hand, the support of family, friends, and the social environment also provides motivation and opportunities for respondents to continue to develop their abilities.

Thus, it can be concluded that the fourth hypothesis is accepted, namely the development of technology, education, and social support simultaneously has a significant effect on the improvement of the quality of Human Resources (HR) of Generation Z in Mataram City. The results of this study show that improving the quality of human resources requires synergy between the use of technology, education, and social support so that individuals are able to improve the knowledge, skills, and abilities needed to face the development of the times and competition in the world of work.

The results of the simultaneous test showed that the development of technology, education, and social support together had a significant effect on the quality of Generation Z human resources in Mataram City. These findings strengthen *Human Capital Theory* which explains that the quality of human resources is not shaped by just one factor, but is the result of the accumulation of various forms of human capital investment, such as education, technology mastery, learning experience, and social environment support. Thus, even though the education variable partially shows a negative and insignificant relationship

direction, simultaneously the three variables are still able to make a significant contribution to improving the quality of human resources.

4. CONCLUSION

The results of the study show that technological developments have a positive and significant effect on the quality of Generation Z human resources in Mataram City, because the use of technology can increase knowledge, skills, competence, and adaptability. Education has a negative but insignificant effect, which shows that formal education has not directly determined the improvement of the quality of human resources, because it is still influenced by the suitability of competencies, experience, skills, and adaptability. Meanwhile, social support has a positive and significant effect on the quality of human resources through the support of family, friends, and the social environment in increasing motivation and competency development. Simultaneously, technological developments, education, and social support have a significant effect on the quality of Generation Z human resources in Mataram City, although there are still other factors outside the research model that also affect it.

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6. BIBLIOGRAPHY

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*(5), 469–480. https://doi.org/10.1037/0003-066X.55.5.469

Atiqa R, N., Aisyah, S., & Nasrullah. (2024). *Pengaruh Hard Skill, Soft Skill, Dan Self-Efficacy Terhadap Kesiapan Kerja Pada Mahasiswa Tingkat Akhir Universitas Muhammadiyah Makassar*. *2*, 306–312.

Becker, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226041223.001.0001

Boat, A. A., Miranda, A., & Syvertsen, A. K. (2022). Enhancing Education and Career Pathways Through Peer and Near-Peer Social Capital. *Journal of Youth and Adolescence*, *51*(7), 1287–1304. https://doi.org/10.1007/s10964-021-01540-x

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, *98*(2), 310–357. https://doi.org/10.1037/0033-2909.98.2.310

Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, *94*(1). http://www.jstor.org/stable/2780243

Csirt UNAIR. (2025). *AI dan Masa Depan pekerjaan: Revolusi atauy Ancaman*. https://csirt.unair.ac.id/ai-dan-masa-depan-pekerjaan-revolusi-atau-ancaman/

Deswenti, E., Widyastuti, T., & Wahyutama, M. Irfan. (2025). *Kepuasan kerja dalam memediasi pengaruh penerapan teknologi informasi dan kompetensi terhadap kinerja karyawan gen z pada grapari telkomsel area dki jakarta*. *8*, 4080–4094.

Hair, J. F., & Sabol, M. (1971). An overview of multivariate data analysis. *Journal of Multivariate Analysis*, *1*(3), 316–346. https://doi.org/10.1016/0047-259X(71)90006-6

Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2022). *An Introduction To Structural Equation Modeling* (3rd ed.). Sage Publishing.

Halizah, N. (2024). *Kinerja Generasi Z: Faktor Disiplin, Lingkungan, Dan Keterampilan Kerja*. *41*(2), 142–153.

Hanushek, E. A., & Woessmann, L. (2020). Education, knowledge capital, and economic growth. In *The Economics of Education* (pp. 171–182). Elsevier. https://doi.org/10.1016/B978-0-12-815391-8.00014-8

Hizam, S. M., Akter, H., Sentosa, I., & Ahmed, W. (2021). Digital competency of educators in the virtual learning environment: A structural equation modeling analysis. *IOP Conference Series: Earth and Environmental Science*, *704*(1), 1–10. https://doi.org/10.1088/1755-1315/704/1/012023

IDN Times NTB. (2024). *Korban Judi Online di NTB Dirawat di RSJ Mutiara Sukma*. https://ntb.idntimes.com/news/ntb/korban-judi-online-di-ntb-dirawat-di-rsj-mutiara-sukma-00-ldn3d-089t2q

Kemph, J. P. (1969). Erik H. Erikson. Identity, youth and crisis. New York: W. W. Norton Company, 1968. *Behavioral Science*, *14*(2), 154–159. https://doi.org/10.1002/bs.3830140209

Marlinah, L. (2020). Peluang dan Tantangan UMKM Dalam Upaya Memperkuat Perekonomian Nasional Tahun 2020 Ditengah Pandemi Covid 19. *Jurnal Ekonomi*, *22*(2), 118–124.

Mukhlisa, M., Sulisworo, D., & Hidayati, D. (2025). Digital Literacy of Generation Z: Challenges for Teachers in the Era of Demographic Bonus. *Journal of Education and Teaching (JET)*, *6*(2), 500–517. https://doi.org/10.51454/jet.v6i2.517

OECD. (2023). *Education at a Glance 2023*. OECD Publishing. https://doi.org/10.1787/e13bef63-en

OECD. (2024). *Bridging Talent Shortages in Tech*. OECD Publishing. https://doi.org/10.1787/f35da44f-en

Okra, R., & Abdussalam. (2025). Peran Literasi Digital dalam Mencegah Penyalahgunaan Data Pribadi Generasi Z di Kota Mataram. *Cite Them Right*, 6–8. https://doi.org/10.1007/978-1-137-58506-6_2

Palepi, R., & Parela, E. (2024). *Pengaruh Kualitas Sumber Daya Manusia (Sdm) Dan Pendidikan Pelatihan Terhadap Prestasi Kerja Pegawai Pada Dinas Kependudukan Dan Pencatatan Sipil Kabupaten Pesisir Barat*. *08*(04).

Prasetyo, B., & Trisyanti, U. (2018). Revolusi Industri 4.0 Dan Tantangan Perubahan Sosial. *IPTEK Journal of Proceedings Series*, *0*(5), 22–27.

Prasetyo, H., & Sutopo, W. (2018). Industri 4.0: Telaah Klasifikasi Aspek Dan Arah Perkembangan Riset. *J@ti Undip: Jurnal Teknik Industri*, *13*(1), 17–26. https://doi.org/10.14710/jati.13.1.17-26

Puspasari, H., & Puspita, W. (2022). Uji Validitas dan Reliabilitas Instrumen Penelitian Tingkat Pengetahuan dan Sikap Mahasiswa terhadap Pemilihan Suplemen Kesehatan dalam Menghadapi Covid-19. *Jurnal Kesehatan*, *13*(1), 65–71. https://doi.org/10.26630/jk.v13i1.2814

Puspitasari, I., Gunawan, G., & Dwijayanthy, M. (2022). Influence of Social Support from Parents and Peers on Career Search Efficacy of College Students in West Java.

Humanitas (Jurnal Psikologi), *6*(3), 287–300. https://doi.org/10.28932/humanitas.v6i3.5590

Putri, E., & Esthi, R. B. (2025). Pengaruh Pengetahuan Pendidikan Terhadap Aspirasi Karir Generasi Z Melalui Dukungan Sosial. *Paradoks: Jurnal Ilmu Ekonomi*, *8*(2), 1610–1620.

Schultz, T. W. (1961). Investment in Human Capital. *American Economic Review*. In *Economic Development and Cultural Change*, *23*(3). https://doi.org/10.3386/w0033

Suciati, T. A., & Deswarta. (2024). *Pengaruh Pelatihan Kerja, Tingkat Pendidikan, Dan Pengalaman Kerja Terhadap Kinerja Karyawan Generasi Z Di Selat Panjang*. *18*(1), 58–79. https://doi.org/10.35931/aq.v18i1.3008

Sudarso, E., & Amaliah, I. (2019). The Impact of Work Engagement and Digital Competence on Generation Z's Work Productivity in South Tangerang City. *Tjyybjb.Ac.Cn*, *27*(2), 58–66.

Thoits, P. A. (2011). Mechanisms Linking Social Ties and Support to Physical and Mental Health. *Journal of Health and Social Behavior*, *52*(2), 145–161. https://doi.org/10.1177/0022146510395592

Tuominen, M., & Haanpää, L. (2022). Young People's Well-Being and the Association with Social Capital, i.e. Social Networks, Trust and Reciprocity. *Social Indicators Research*, *159*(2), 617–645. https://doi.org/10.1007/s11205-021-02762-z

UNESCO. (2023). *Global Education Monitoring Report 2023: Technology in Education: A Tool on Whose Terms?* GEM Report UNESCO. https://doi.org/10.54676/UZQV8501

World Economic Forum. (2025). *Future of Jobs Report*. In *Facilitating Work-based Learning* (Issue January). https://doi.org/10.1007/978-1-137-40325-4