

## Antecedents and consequences quality of human resources in Bitung City, North Sulawesi, Indonesia

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### Abstract:

**Background:** If a region has a competitive advantage, it requires human resources who have the knowledge and competence to develop themselves so that they can contribute to the area where the individual lives. Bitung City, North Sulawesi Province, has a high human development index score and a high competitiveness index with an average length of schooling only up to grade 2 SMA. This paper aims to test whether the level of education can affect the quality of human resources so that it can create superior regional competitiveness with other regions.

**Materials and Methods:** Using a quantitative approach, the data obtained were analyzed using SPSS version 26 statistical analysis on 260 samples where the questionnaire before being used had been tested for validity and reliability. Analysis of the data is intended to examine the relationship and influence of the variables of education level, quality of human resources, and regional competitiveness.

**Result:** Based on the results of data processing, it is found that the level of education has a positive relationship and influence on the quality of human resources, as well as on regional competitiveness, furthermore the quality of human resources has a positive relationship and influence on regional competitiveness

**Conclusion:** Based on the results of the study, it is concluded that if a region seeks to maintain or will improve its competitiveness sustainably compared to other regions, it is necessary to pay attention to and develop education and the quality of human resources in the region.

**Key Word:** Regional competitiveness, level of education, and quality of human resources.

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### I. Introduction

Improving the quality of life and welfare of the community as the purpose of the enactment of laws related to the regional government, among others, relates to improvements in public services and increasing regional competitiveness. Increasing the competitiveness of a region will contribute to regional productivity so that the region not only has a competitive advantage but also creates job opportunities for its people.

Problems that occur in Indonesia where until today our competitiveness is still at a low level both nationally and regionally. Based on a survey from the global competitiveness index in 2018, it turned out that Indonesia experienced a decline of 5 ranks from position 45 to rank 50 in 2019. Similar to the report from the World Bank in 2020 in the Easy of doing Business Report, there was also a decline in the phase of starting a business. Furthermore, at the regional level, based on a report from the Asia Competitiveness Institute in 2017, still shows striking differences between regions in Indonesia, for example, DKI Jakarta has received a score of 3.5 while West Papua has received a score of -1.9.[1]

Another problem is that our competitiveness has not been built through the pillars of inclusive and sustainable development because most of it focuses on assessing the economic aspect. This can be proven by the measurement results from the Environmental Performance Index where Indonesia is still ranked 105th out of 180 countries in 2016 and ranked 133rd in 2018.

Sources of data from the World Economic Forum (WEF) reported that Indonesia's competitiveness ranking according to the 2019 report also decreased by five ranks when compared to the previous year, which was at 45th. This indicates that national competitiveness still needs further attention because it is closely related to the quality of human resources[2].

Talking about the quality of human resources, especially in the education dimension, can be seen in the table below:

**Table 1** The Quality of Human Resources in Indonesia

No	Indicator	Year		
		2019	2020	2021
1.	Life expectancy	71,34	71,47	71,57
2.	Old School Hope	12,95	12,98	13,08
3.	Average Length of School	8,34	8,48	8,54
4.	Human Development Index	71,92	71,94	72,29

Taking into account the table above, the Expectation of School Age for the Indonesian population in 2021 is 13.08, thus it can be interpreted that school-aged children only attend the average level of Diploma I and this is an increase from the previous year. On the other hand, the average length of schooling in 2021 is 8.54 years, which means that people aged 25 years and over mostly only study up to grade IX and there is an increase compared to the previous year. Next, pay attention to the Human Development Index data recorded in 2021 at 72.29 and an increase from previous years.

The totality of government policies on improving the quality of human resources, among others, has set 20% in each year's government budget, both central and local governments, but these efforts have not been able to improve the quality of education itself.

Referring to the value of The Program for International Student Assessment (PISA) in 2018, Indonesia ranks 62 with a score of 395.3. This figure is far different from neighboring countries such as Singapore (415), Thailand, and Vietnam 415[3].

The Indonesian government to improve the quality of education has made maximum efforts to study in developed countries such as Japan regarding discipline and education budgets, Hong Kong related to the education system, and the quality of teachers and instructors [2]. Thus, the problems mentioned above can certainly be resolved when HR possessed can show productive work and have qualified knowledge and abilities, all of which are obtained through education.

In Bitung City, North Sulawesi Province, which is used as the locus of this research, related to the Regional Competitiveness Index (IDSD) of Bitung City, based on the Report of the National Research and Innovation Agency (BRIN) of the Republic of Indonesia in 2021, it is at 3.0110, with a high category. Meanwhile, related to the quality of human resources, seen from the life expectancy, the expected length of schooling, the average length of schooling, and the human development index, according to a report from the Central Bureau of Statistics of Bitung City in 2022, is shown in the following table[4]

**Table 2 :** Quality of Human resources in Bitung City

No	Indicator	Year		
		2019	2020	2021
1.	Life Expectancy	71,00	71,07	71,10
2.	The expectation of the school Year	12,60	12,61	12,62
3.	Average Length of School	9,87	9,88	9,89
4.	Human Development Index	74,20	74,10	74,20

Source: BPS Bitung City 2022

The data in table 2 above explains that the Expectation of Old School (HLS) residents in Bitung City in the last three years (2019 to 2021) is an average of 12.61 years. This figure is lower than the national average length of schooling for the last three years (2019 to 2021), which is 13.08 years. This means that children in Bitung City who are 7 years old have the hope of pursuing education only up to the Diploma I level. Furthermore, the Average Length of Schooling (RLS) in Bitung City in the last three years (2019 to 2021) is 9.88 years. This figure is higher than the national average length of schooling for the last three years (2019 to 2021), which is 8.45 years. Thus, the average population of Bitung City aged 25 years and over has studied up to class XI. Meanwhile, the average Human Development Index (HDI) for the last three years (2019 to 2021) is 74.16. This figure is higher than the national Human Development Index for the last three years (2019 to 2021), which is 72.05 years [4]

The phenomenon that exists in Bitung City based on the data above becomes interesting for further research because it was found that there was a gap phenomenon, where the Regional Competitiveness Index (IDSD) was in the high category nationally, and the Human Development Index (IPM) was at nationally high category. However, the School Year Expectation (HLS) of children aged 7 years is only up to the Diploma I

level, and the Average Length of Schooling (RLS) for residents aged 25 years and over only takes education up to class XI (Class 2 SMA).

Ideally, with a high Human Development Index and Regional Competitiveness Index, the Expectation of Years of Schooling and Average Length of Schooling which are the dimensions of knowledge in the Human Development Index (IPM) should also be high. In the sense that the hope of taking education for school-age children in Bitung City is not only up to the Diploma, I level, there is also an increase in both the number and level of education in the average length of schooling (RLS) of the population aged 25 years and over.

The condition of the low level of education of the people of an area in the long term will certainly affect the quality of the resources owned and courses will have an impact on the competitiveness of the region itself. This refers to previous research that has been carried out, for example, research conducted by Anjarwati et.al (2020), and Manawaroh (2013) which found that the level of education had a positive and significant effect on the quality of human resources.[5],[6] Meanwhile research from Krsti´c et.al (2020) found that the level of education had a positive and significant effect on competitiveness[7]. Furthermore, research from Sudiatmika and Purwanti (2020), Maulidiyah et.al (2020), and Widi et.al (2015) found that the quality of human resources has a significant effect on competitiveness[8].[9]

### **1.2 Problem Formulation**

Based on the description of the background of the problem above, the formulation of the problem in this study is as follows:

1. Is there any influence of education level on the quality of human resources in Bitung City?
2. Is there any influence of the quality of human resources on regional competitiveness in Bitung City?
3. Is there any influence of education level on regional competitiveness in Bitung City?

### **1.3 Research Objectives**

Based on the formulation of the problem above, the objectives of this study are:

1. Examining the effect of education level on the quality of human resources in Bitung City.
2. Examining the influence of the quality of human resources on regional competitiveness in Bitung City.
3. Examining the effect of education level on regional competitiveness in Bitung City.

### **1.4 Research Benefits**

1. The results of this study can enrich knowledge as well as study material to analyze the determinants of regional competitiveness.
2. The results of this study can provide input to policymakers, especially related to the determinants of regional competitiveness, especially for the Bitung City Government.

## **II. Material And Methods**

### **2.1 Theoretical Foundation**

#### **2.1.1 Quality of Human Resources**

In large and small organizations, be it international, regional, or domestic, human resources are the main actor and the key to success. Having superior human resources is having human resources in the excellent physical condition and having qualified intellectual abilities [10]

The quality of human resources according to Mulyana (2010) in conformity with the standard pattern achieved through examination, while according to Hasibuan (2017) the quality of human resources is defined as an integrated ability of the power of thought and physical conditions that exist in each individual [11]. In another understanding, according to Selo Sumardjan (2009), it is said that the quality of human resources can be seen in physical conditions (health conditions, conditions of physical abilities and skills, and resilience, then non-physical qualities include independence, perseverance, honesty, and character [12].

Furthermore, according to Ndraha (1999) quality, human resources are people who can create not only comparative value but are also able to create innovative competitive generative value through intelligence, creativity and imagination, abilities. Furthermore, it is said that creating physical quality can be through health and nutrition programs [13]. Thus, efforts that can be made are also through increased education and training. And this is what is interpreted as human resource development [14].

Understanding the meaning of human resources are individuals in the organization who have the skills, health, education, and experience that can contribute to the organization to help the organization achieve its goals. Meanwhile, efforts to increase capacity can be carried out through education, training in excellent health, and adequate nutrition.

Furthermore, the implementation of improving the quality of life can be done through:

- 1). Development of education with attention to the direction of future economic development.

- 2). Health development through the establishment of a culture of healthy living and increasing the coverage of health services in remote communities.
- 3). Especially for people categorized as poor, quality improvement can be done through the provision of practical skills, as well as encouraging productivity and community self-reliance to escape the cycle of poverty.
- 4). Encouraging increasing family planning movement and s, equitable distribution of the population [15].

The indicators of the quality of human resources according to Sedarmayanti (2009) include:

1. Physical ability (health).

It is the ability to perform tasks that demand stamina, skills, strength, and characteristics that match the task at hand. Research into the various requirements has identified nine basic abilities involved in the performance of physical tasks. The indicators in measuring physical ability (health) include:

- a) Have good health and physical fitness.
- b) Have a decent and humane standard of living.

2. Non-physical abilities, which include:

- a) Intellectual Ability (intelligence), is the ability needed to carry out various thinking activities reasoning, and solving problems. Individuals in most societies make intelligence a high value. Because individuals who have intelligence are more likely to be leaders in a group.
- b) Psychological (mental) ability, is an ability related to ethics, behavior, attitudes, and human mental function scientifically, besides that, human mental ability is often associated with a person's ability to choose and sort out what is good or bad for use in organizations [16].

### **2.1.2 Education Level**

Education is urgent as well as a standard of how to measure the quality of humans in an organization because education will provide benefits to individuals to be able to work while increasing their productivity. And with education, humans will understand themselves as God's creations which have advantages and uniqueness compared to other living creatures it is hoped that these individuals can make a positive contribution to the progress of a country [17].

According to Azra (1999) states that the level of education is an activity of a person in developing abilities, attitudes, and forms of behavior, both the present life and at the same preparation future life through certain organizations or not organized [18]. Meanwhile, according to the Big Indonesian Language Dictionary (KBB I), the level of education is a continuous statistic determined based on the level of development of the students, the breadth of teaching materials, and the educational objectives listed in the curriculum.

Thus, the level of education can be interpreted as a process for the students to improve their education to the higher level they are pursuing.

The level of school education according to Ihsan, (2005) consists of basic education, secondary education, and higher education.

- 1) Basic Education, is a level of education that provides additional knowledge and skills, develops the basic attitudes needed by the community, and prepares educated individuals to continue at the secondary education level.
- 2) Secondary Education, is a good level of education consisting of General Secondary Education and Vocational High School. At this level, it is held not only to prepare students to enter the world of work but also to prepare for further education at a higher level. Secondary education consists of general secondary education and vocational secondary education. General secondary education is held in addition to preparing students for higher education, but also to enter the workforce. Vocational secondary education is organized to enter the workforce or attend professional education at a higher level. Secondary education can be an ordinary education or an extraordinary education. Secondary education levels are SMP, SMA, and SMK.
- 3) Higher Education, is a level of education that prepares community members as students to have academic and professional abilities and the knowledge gained can be applied, and developed to create new science and technology to improve the welfare of the nation and education includes strata 1, strata 2 and even strata 3 [19].

Concerning the development of human resources, especially quality improvement, Kartadinata (2011) suggests that developing quality human resources is understood as a contextual activity so that human resource development is not limited to efforts to prepare humans who master the knowledge and skills according to the type of need. but also create humans who are capable and have the will to acquire knowledge continuously so that education can be used as a means to develop the quality of human resources [20].

The indicators for the level of education according to Lestari in Wirawan (2016) are:

- 1) Formal Education includes the latest education possessed by each worker consisting of Elementary School, Junior High School, Senior High School, and tertiary institutions.
- 2) Informal education consists of attitudes and personalities that are formed from the family environment and the surrounding environment [21].

Meanwhile, according to the National Education System Law No. 20 (2003), Education level indicators consist of education level and suitability of majors, which consist of:

- a. Educational stage
  - 1) Basic education is the initial level of education which is followed for the first 9 (nine) years and is the basis for the next level of education
  - 2) Secondary education is a level of further education from basic education.
  - 3) Higher education is a level of education that is followed after passing through the secondary education level. The educational program includes undergraduate, master's, doctoral, and special education programs. Educational level is an educational stage that is determined based on the level of development of students, goals to be achieved, and abilities developed, consisting of:
    - A. Formal education indicators are the last level of education completed by workers, and the suitability of majors.
    - b. The indicator for non-formal education is the relevance of non-formal education that has been followed by the current job.
    - c. Informal education is an indicator of attitude and personality that is formed from the family and environment.
- b. The suitability of the department is that before the employee is recruited, the company first analyzes the level of education and the suitability of the employee's education department so that later he can be placed in a position that is by his educational qualifications. Thus, employees are expected to provide good performance for the company.

### **2.1.3 Competitiveness Concept**

Entering the era of economic globalization, which is characterized by free and universal competition, where society is sustainable or survives if the community still has high competitiveness. In addition, by having the power, unity will be formed, especially for regions that have the same potential so that they have the opportunity to become a common strength because competitiveness is defined as an ability to prepare the need for goods and services under international standards so that it becomes the potential to have income that continues to increase and is sustainable. also created jobs and job opportunities [22]

The meaning of competitiveness is related to the ability of a region, organization, and even a country to maintain the sustainability of competitive advantages. Porter defines national competitiveness as a country's ability to achieve, or maintain an advantageous position compared to other countries in several sectors [23].

Porter further stated that the notion of competitiveness can be seen at the level of:

- a. Company Organization
- b. Industry or industrial group,
- c. Country or region (as an economic unit).

Interpreting the notion of competitiveness as mentioned above is very different because it is located in different regions from one another, but in each group, they are related to one another because competitiveness in companies is an instrument that shapes competitiveness in industries, and regions, or countries. On the other hand, the conditions or factors that exist in the industry in the region or country will be a picture of the development of the company's competitiveness in the region concerned [24].

The World Economic Forum is an institution that publishes power reports that the nation defines competitiveness as a form of national economic capability and strength in achieving sustainable and sustainable economic growth. Its components consist of appropriate forms of policy, appropriate policies, appropriate institutions, and mutually supportive economic characteristics to realize sustainable and economic growth.

#### **2.1.3.1 Regional Competitiveness**

Definition Regional competitiveness according to UK-DTI (1998) is the ability of the region to create high income and job opportunities by providing opportunities for regional and international competition. Furthermore, the BI Center for Education and Central Banking Studies (PPSK-BI) defines regional competitiveness as a regional economic competence to achieve high and sustainable prosperity and is open to both domestic and international competition.

Another approach can be used to define competitiveness according to the European Commission, namely the ability of a region, or organization to produce goods and services as required by international markets and followed by the ability to maintain a consistently high level of income (European Commission, 1999). in Gardiner, Martin, and Tyler, 2004).

Abdullah, et.al (2002). In his research, the main indicators in determining the competitiveness of a region are (1) Regional economic conditions, (2) Openness, (3) Financial Management System, (4) Infrastructure and natural resources conditions, (5) Science and Technology, (6 ) Human resources, (7) Institutions, (8) Governance and government policies, and (9) Microeconomic management.

In KPPOD's (2005) research, regional competitiveness as an investment attraction for districts/cities in Indonesia is observed through the existence of institutional variables, socio-political, regional economy, labor, productivity, and physical infrastructure.

## 2.2 Development of Hypotheses and Research Models

The formulation of this research hypothesis is built on the results of previous studies such as research from (Hapsari et. al. 2019) which found that optimization of training and education will affect the improvement of the quality of human resources. While research Anjarwati et.al (2020), and Manawaroh (2013) found that the level and level of education had a positive and significant effect on the quality of human resources. Furthermore, Krstić et.al (2020) found that the level of education had a positive and significant effect on competitiveness. Research from Sudiatmika and Purwanti (2020), Maulidiyah et.al (2020) Putri et.al (2015) found that the quality of human resources has a significant effect on competitiveness.

Based on the results of these previous studies, the hypotheses formulated in this study are as follows:

1. It is suspected that there is an influence of the level of education on the quality of human resources in Bitung City.
2. It is suspected that there is an influence of the quality of human resources on regional competitiveness in Bitung City.
3. It is suspected that there is an influence of education level on regional competitiveness in Bitung City.

Meanwhile, the research model based on the formulation of the research hypothesis is shown in the following figure:

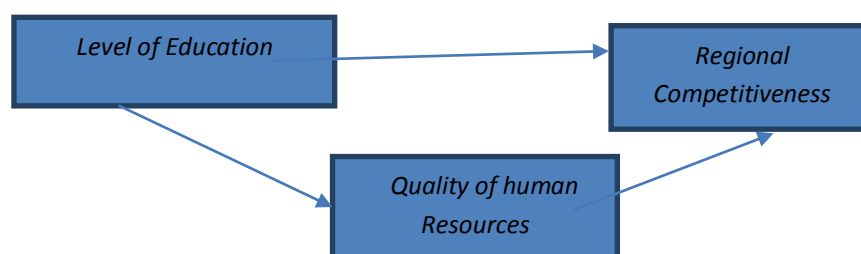


Figure 1 Research Model

**Study Design:** In this study using a quantitative approach and using statistical formulas in analyzing the data and facts found

**Study Location:** This research was held in Bitung City, North Sulawesi Province, Indonesia.

**Study Duration:** Maret 2022 to June 2022

**Sample size:** 260 respondents

**Sample size calculation:** the sample size is determined according to Hair, (2014) where the minimum sample size is 100 or greater. Furthermore, the minimum sample is 5 times the number of questions or it would be better if it had a ratio of 10 to 1. In this study, there were 26 question items in the questionnaire, so the required sample size was at least  $26 \times 10 = 260$  samples.

**Subjects & selection method:** In this study, the population is all people aged in the labor force, namely  $15 \pm 65$  as residents of the labor force and living in Bitung. Based on 2021 data, the population in the labor force age is 94,087 people (BPS Kota Bitung, 2022). Meanwhile, the unit of analysis is the community group in Bitung City

### Inclusion criteria:

1. with the status of students,
2. lecturers/teachers,
3. bureaucrats,
4. community/religious leaders,
5. BUMN/bank employees,
6. entrepreneurs,
7. and members of the Regional People's Representative Assembly

### Exclusion criteria:

working-age population

### **Procedure methodology**

Testing the research instrument in this study was to use a questionnaire given to each respondent who became the sample in this study. Before this questionnaire is distributed to respondents to be filled out, the questionnaire must meet the validity and reliability requirements that are carried out through testing.

#### **Validity Test**

According to Sugiyono (2013) to measure the validity or validity of the questionnaire used, validation testing is carried out for each question item, namely by correlating the score of each question item with the total score. And if the correlation value is equal to or greater than 0.30 then the item is declared valid but if the correlation value is below 0.30 then it is declared invalid [25]. In calculating the validity using the Pearson Product Moment method and analyzed with statistical software Statistical Package for Social Science (SPSS) version 26.

#### **Reliability Test**

A reliability test is a test tool to measure a question item which is an indicator of a variable or constructs. Questionnaires are said to be reliable or reliable if the respondents' answers to questions are consistent and stable from time to time. This test is carried out using the Cronbach Alpha technique using statistical software, namely the Statistical Package for Social Science (SPSS) version 26. An instrument will be said to be reliable if the Cronbach Alpha value is greater than 0.6.

#### **Data Analysis Method**

The data analysis methods used in this study are: Path Analysis  
Researchers analyzed the path analysis method because they wanted to know the causal relationship, intending to explain the direct or indirect effect between exogenous variables and endogenous variables through intervening variables, in this case, the level of education (exogenous), the quality of human resources (exogenous). intervention), and regional competitiveness (endogenous).

#### **Operational Definition of Variables and Measurement**

The operational definitions of variables in this study are as follows:

##### **a. Education Level (Independent Variable)**

The stages of continuing education, are determined based on the level of development of students, the level of complexity of teaching materials, and how teaching materials are presented.

By using the indicators proposed by Lestari in Ketut Wirawan (2016), namely:

- 1) Formal Education consists of the latest education completed by each worker consisting of Elementary School, Junior High School, Senior High School, and tertiary institutions.
- 2) Informal education includes attitudes and characteristics that are formed from the family environment and the surrounding environment.

##### **b. Quality of Human Resources (Intervening Variables)**

Characteristics of knowledge and skills possessed, behavior, and experience that exist in Bitung City residents in completing a particular job or role effectively and efficiently.

The indicators used to measure this variable are the indicators proposed by Sedarmayanti (2009) including:

1. Physical ability (health).
2. Non-physical abilities.

##### **c. Regional Competitiveness (Bound Variable)**

Bitung City's ability to create high income and job opportunities while remaining open to domestic and international competition.

The indicators used to measure this variable use the indicators proposed by KPPOD (2005) which include:

1. Institutional Indicators,
2. Socio-political indicators,
3. Regional Economic Indicators,
4. Labor Indicators,
5. Productivity Indicators and
6. Indicators of physical infrastructure.

The following is Table 3 which shows the lattice of this research instrument:

**Table 3 : Grid of Research Instruments**

Variable	Indicator	Item
Education Level (X)	Pendidikan Formal	<ol style="list-style-type: none"> <li>1. The level of formal education determines the ability to master science.</li> <li>2. The level of formal education provides better-thinking skills.</li> <li>3. The ability to master a person's knowledge is determined by the level of education he/she follows.</li> <li>4. Thinking ability is determined by the level of education follow.</li> </ol>
	Non-formal education	<ol style="list-style-type: none"> <li>1. Experience determines mastery of science.</li> <li>2. Experience determines the ability to think.</li> <li>3. The family in which one grows up determines one's intelligence.</li> <li>4. The environment (outside the family) where one grows up determines one's intelligence.</li> </ol>
Quality of Human Resources (I)	Physical Ability	<ol style="list-style-type: none"> <li>1. Someone who has the quality can be seen from the physical ability.</li> <li>2. A person who has a healthy physique determines the quality of his performance.</li> <li>3. A person who has a healthy physique determines his productivity.</li> </ol>
	Non-Physical Ability	<ol style="list-style-type: none"> <li>1. A person's spiritual health determines the qualities he possesses.</li> <li>2. A person's spiritual health determines his physical health.</li> </ol>

Regional Competitiveness	Institutional	1. Regions have competitiveness if there is legal certainty.
	Socio-political	2. A region has competitiveness if its security is conducive.
	Regional economy 3.	3. The area has competitiveness if the economic growth is good
	Labor	4. Regional workers have competitiveness if the unemployment rate is lo
	Productivity	5. Regions have competitiveness if the involvement of the community in regional development is high
	Physical infrastructure	6. Regions have competitiveness if they have good physical infrastructure

### Statistical analysis

Data were analyzed using SPSS version 26

### III. Result

Validity testing is done by Pearson correlation, based on the correlation of each question item on the variable with the total score. The question item criteria are declared valid if they have a correlation value > 0.3 and a significant < 0.05.

The following are the results of the validity of the research instrument for each variable in this study:

#### 3.1. Education Level Variable (X)

Table 4 below shows the results of the validity test on the eight questions used to test the Education Level (X) variable.



**Table 4 :** Education Level Variabel Validity (X)

Question	Correlation	Significance	Description
1.	0,597	0,000	Valid
2.	0,639	0,000	Valid
3.	0,423	0,000	Valid
4.	0,732	0,000	Valid
5.	0,603	0,000	Valid
6.	0,672	0,000	Valid
7.	0,633	0,000	Valid
8.	0,453	0,000	Valid

Source: Appendix

Based on the results of the validity test in Table 4 above, the results show that the correlation between each question item to the total value shows a correlation value greater than 0.30 and significantly less than 0.05 so eight questions on the Education Level variable (X) are stated valid.

### 3.2. Human Resources Quality Variable (I)

Table 5 below shows the results of the validity test on the five questions used to test the Human Resources Quality (I) variable.

**Table 5 :** Validity of Human Resources Quality Variable (I)

Question	Correlation	Significance	Description
1.	0,657	0,000	Valid
2.	0,741	0,000	Valid
3.	0,648	0,000	Valid
4.	0,672	0,000	Valid
5.	0,675	0,000	Valid

Source: Appendix

Based on the results of the validity test in Table 5 above, the results show that the correlation between each question item to the total value shows a correlation value greater than 0.30 and significantly less than 0.05 so the five questions on the Human Resource Quality variable (I) is declared valid.

### 3.3. Regional Competitiveness Variable (Y)

Table 6 below shows the results of the validity test on the thirteen questions used to test the Regional Competitiveness (Y) variable.

**Table 6 :** Regional Competitiveness Variable Validity (Y)

Question	Correlation	Significance	Description
1.	0,620	0,000	Valid
2.	0,689	0,000	Valid
3.	0,657	0,000	Valid
4.	0,624	0,000	Valid
5.	0,556	0,000	Valid
6.	0,521	0,000	Valid
7.	0,559	0,000	Valid
8.	0,468	0,000	Valid
9.	0,452	0,000	Valid
10.	0,536	0,000	Valid
11.	0,289	0,000	Valid
12.	0,461	0,000	Valid
13.	0,570	0,000	Valid

Source: Appendix

Based on the results of the validity test in Table 6 above, the results show that the correlation between each question item to the total value shows a correlation value greater than 0.30 and significantly less than 0.05 so thirteen questions on the Regional Competitiveness variable (Y) is declared valid.

### Research Instruments Reliability Test Results

Testing the reliability or reliability of the research instrument was carried out based on the Cronbach alpha value. The instrument criteria are declared reliable if it shows a Cronbach alpha value > 0.6 (moderate limit).

The following is Table 4.4 which shows the results of reliability testing on the three variables used in the study:

**Table 7 : Research Variable Reliability**

Variable	Alpha Cronbach	Description
Tingkat Pendidikan (X)	0,729	Reliable
Kualitas Sumber Daya Manusia (I)	0,704	Reliabel
Daya Saing Daerah (Y)	0,785	Reliabel

Source: Appendi

Based on the results of the reliability test in Table 4.4 above, the results obtained that the Cronbach alpha value indicated by the three variables used in the study met the reliability testing criteria because it was above 0.60.

**Research Results**

The following are the results of research on the antecedents and consequences of the quality of human resources in Bitung City using path analysis.

**Effect of Education Level (X) on the Quality of Human Resources (I) – First Equation**

**a. Coefficient of Determination**

The results of the coefficient of determination test are shown in Table 8 below:

**Table 8 : Result of Coefficient of Determination First Equation**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. An error in the Estimate
1	.267 <sup>a</sup>	.071	.068	3.309

a. Predictors: (Constant), Tingkat Pendidikan

Source: Data Processing (2022)

The value of the R square containing the Table 8 model summary above is 0.071 or 7.1%. This shows that the contribution of the influence of education level (X) on the quality of human resources (I) is 7.1%, while 92.9% is the contribution of other variables not included in the research model.

**b. Path Analysis (Partial Test)**

The results of the path analysis of the partial test of the effect of education level (X) on the quality of human resources (I) are shown in Table 9 below:

**Table 9 Hasil Analisis Jalur Persamaan Pertama**  
**Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.891	1.551		7.022	.000
	Tingkat Pendidikan	.222	.050	.267	4.454	.000

a. Dependent Variable: Kualitas Sumber Daya Manusia

Based on Table 9 above, it is obtained equation 1 path analysis for the effect of education level (X) on the quality of human resources (I) as follows:

$$I = 0.267 X + 0.963 c1$$

From the first equation above, the path coefficient (Beta) is 0.267. The significance value (sig) obtained is 0.000 where this value is smaller than (0.05). The value of  $e1 = 1 - 0.071 = 0.963$ . These results indicate that the level of education (X) has a significant effect on the quality of human resources (I).

**Effect of Education Level (X) and Quality of Human Resources (I) on Regional Competitiveness (Y) – second Equation**

**a. Coefficient of Determination**

The results of the coefficient of determination test are shown in Table 10 below:

**Table 10 : Result of the Coefficient of Determination Second Equation**

Model Summary				
Model	R	R Square	Adjusted R Square	the error or the Estimate
1	.923 <sup>a</sup>	.852	.851	5.489
a. Predictors: (Constant), Kualitas Sumber Daya Manusia, Tingkat Pendidikan				

Source: Data Processing (2022)

The value the of R square contained in Table 4.7 model summary above is 0.852 or 85.2%. This shows that the contribution of the influence of the level of education (X) and the quality of human resources (I) on regional competitiveness (Y) is 85.2%, while 14.8% is the contribution of other variables not included in the research model.

**b. Model Test Results (Simultaneous F-Test Test)**

The results of the model test or simultaneous test aim to test whether the independent variables (independent) in this case the level of education (X) and the quality of human resources (I) are variables that statistically meet the requirements to predict the dependent variable, namely regional competitiveness ( Y). The results of the F test in this study are shown in Table 4.8 below:

**Table 11 : Simultaneous Test Result ( F-Test Model )**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	44678.720	2	22339.360	741.348	.000 <sup>b</sup>
	Residual	7744.295	257	30.133		
	Total	52423.015	259			
a. Dependent Variable: Regional competitiveness						
b. Predictors: (Constant: Quality of Human Resources, Level of Education						

Source: Data Processing (2022)

Table 11 above shows that the model test has an F value of 741.348 with a significance level of 0.000 where the value of sig F is smaller than (0.05). This means that the model in equation 2 meets the requirements (fit). Thus, the variable level of education (X) and the quality of human resources (I) are variables that can predict the regional competitiveness variable (Y).

**c. Path Analysis (Partial Test)**

The results of the path analysis of the effect of education level (X) and the quality of human resources (I) on regional competitiveness (Y) are shown in Table 12 below:

**Table 12: Path Analysis Result Of Second Equation**

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.584	2.808		11.247	.000
	Tingkat Pendidikan	2.110	.086	.612	24.589	.000
	Kualitas Sumber Daya Manusia	2.270	.103	.547	21.984	.000
a. Dependent Variable: Daya Saing Daerah						

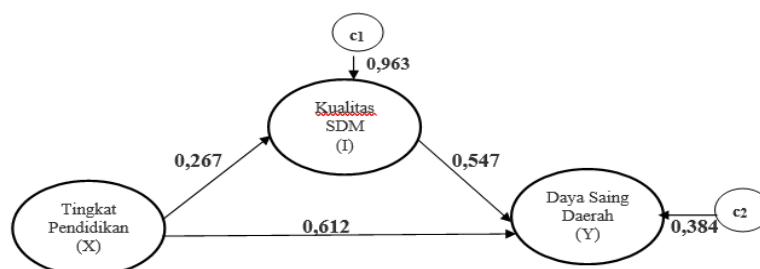
Source: Data Processing (2022)

Based on Table 12 above, it is obtained second equation path analysis for the influence of education level (X) and quality of human resources (I) on regional competitiveness (Y) as follows:

$$Y = 0.612 X + 0.547 I + 0.384 c2$$

From the second equation above, the path coefficient (Beta) for the level of education (X) is 0.612, and the path coefficient (Beta) for the quality of human resources (I) is 0.547 with a significance value (sig) of 0.000 each where this value is smaller. of (0.05). The value of  $e_2 = 1 - 0.852 = 0.384$ . These results indicate that the level of education (X) and the quality of human resources (I) have a significant effect on regional competitiveness (Y).

The empirical model of this research path analysis is shown in Figure 4. below:



**Gambar 4.1**  
**Model Empirik Analisis Jalur**

Based on the results of the path analysis in the first equation and second equation and Figure 4.1 above, it shows that partially:

1. There is a significant effect of the level of education on the quality of human resources.
2. There is a significant influence on the quality of human resources on regional competitiveness.
3. There is a significant influence of the level of education on regional competitiveness.

Thus, all research hypotheses are accepted.

#### IV. Discussion

##### 4.1 The Effect of Education Level on the Quality of Human Resources

Based on the results of the path analysis, it is found that the level of education has a positive and significant effect on the quality of human resources in Bitung This means that the quality of human resources in the city of Bitung is influenced by the level of education of the people. The higher the education level of the community, the higher the quality of existing human resources, and vice versa.

The results of this study as the statement put forward by Hapsari et.al (2019) that education is essential in achieving welfare and the integrity of human life. A high level of education is expected to be able to create good quality human resources. So that they are expected to contribute to themselves for the organization.

Likewise, the results of this study are in line with the theory of human capital (Todaro, 2006) which states that an increase in investment in education will re-increase the quality of human resources itself which in turn can increase productivity. In addition, it is also in line with Citra (2012) that investment in education has a significant effect on productivity. This increase in investment in education, both in the form of facilities and infrastructure such as public services and infrastructure development as well as tools that support education itself will lead to an increase in the quality of human resources because the increased education investment in the form of the education budget issued by the government indicates an increase in the quality of human resources. development of the quality of human resources. Conversely, if there is a decrease in investment in education, the quality of resources will also decrease because a decrease in investment in education indicates a decline in the provision of educational facilities and infrastructure. The decline in facilities and infrastructure in the form of public services and the provision of tools for educational activities will result in a decrease in the quality of human resources.

##### 4.2 The Influence of the Quality of Human Resources on Regional Competitiveness

Based on the results of the path analysis, it is found that the quality of human resources has a positive and significant effect on the competitiveness of the Bitung City area. This means that Bitung City's competitiveness is also determined by the quality of its human resources. The higher the quality of human resources, the higher the competitiveness. On the other hand, the lower the quality of human resources, the lower the competitiveness.

The results of this study are in line with the research proposed by Sudiarmika and Purwanti (2020), Maulidiyah et.al (2020), and Widi and Ariastita (2015), which explained that competitiveness can also be seen in the ability of human resources ranging from abilities, experience, and skills in managing their business, therefore human resources have a positive and significant impact on competitiveness.

The essence of human development is both as individuals and as a whole society. The success of the development is no longer measured in terms of the economy by the extent to which development can improve the quality of human resources (HR). In today's sustainable development, it is not only supported by economic development but also by the development of human resources, therefore investment in the human aspect as the basic capital of development is highly prioritized. Likewise, in the current context of regional development, the role of human resources (HR) is also very large, especially in managing and regulating development that is more effective, efficient, and sustainable. In fact, with the enactment of the regional autonomy law which gives each region the authority and flexibility to regulate their respective regions, the role of human resources is directed at accelerating regional development.

#### **4.3 The Influence of Education Level on Regional Competitiveness**

Based on the results of the path analysis, it is found that the level of education has a positive and significant effect on the competitiveness of the Bitung City area. This means that the higher the level of education, the higher the competitiveness. Vice versa, the lower the level of education, the lower the competitiveness.

The results of this study are in line with research put forward by the World Economic Forum (WEF) which compiled the Global Competitiveness Index (GCI) as a benchmark for the macroeconomic and microeconomic performance of a country's competitiveness. GCI provides a comprehensive explanation of the factors that are considered important in boosting the country's productivity and competitiveness. These factors cannot stand alone to form a country's competitiveness but are related to and strengthen one another. The weakness of one factor will hurt other factors. For example, the power of the ability to innovate will be difficult to achieve without health and education factors and good workforce training will absorb the latest technology. Even though these factors form a single unit that forms the country's competitiveness index, the GCI still provides a detailed assessment of each of these factors so that countries can find out which factors still need to be developed.

### **V. Conclusion**

Based on the results of research and discussion, this research can be concluded as follows:

1. There is a significant effect of education level on the quality of human resources. This means that the quality of human resources in the city of Bitung is influenced by the level of education of the people. The higher education level of the community, the higher the quality of existing human resources, and vice versa.
2. There is a significant influence on the quality of human resources on regional competitiveness. This means that Bitung City's competitiveness is also determined by the quality of its human resources. The higher the quality of human resources, the higher the competitiveness. On the other hand, the lower the quality of human resources, the lower the competitiveness.
3. There is a significant influence of the level of education on regional competitiveness. This means that the higher the level of education, the higher the competitiveness. Vice versa, the lower the level of education, the lower the competitiveness.

### **Suggestions**

Based on the conclusions of the research results, suggestions that can be given to the Bitung City government to improve regional competitiveness are as follows:

1. Encouraging the economic growth and development of Bitung City by increasing the education sector, both formal and informal for the community. Because the improvement in the education sector will improve the quality of existing human resources.
2. Encouraging the development and improvement of urban infrastructure as a supporter of increasing regional competitiveness.
3. There is further research on the factors that affect the competitiveness of Bitung City by using other indicators and variables other than those already used in this research so that factors that affect competitiveness are more comprehensively obtained.

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