The Influence of School Facilities and Technology on The Demand for Teacher Workforce in Private High School in Jambi City

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Abstract

This study aims to analyze the influence of school facilities and technology on the demand for teacher labor. The study was conducted at 21 private high schools in Jambi City. This study uses quantitative methods in collecting and analyzing the data needed to answer the research questions. Data were analyzed using multiple regression statistical techniques. Based on the analysis, it shows that the school facility variable has a positive and significant effect on the demand for labor in the education sector. The more school facilities used by educational institutions, the higher the need for teacher labor used by the school. The technology variable has a positive and significant effect on the demand for labor in the education sector. The better the use of technology in managing schools, the more it will optimize the role of each sector in the school so that it will increasingly require the role of teacher labor. The regression model produced statistically has a fairly high ability to predict the effect of school facilities and technology on the demand for labor in the education sector because it is supported by an R-square value of 60.4%. Based on these findings, it is clear that good management of school facilities and technology will have an impact on increasing the demand for labor in the education sector.

How to Cite

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INTRODUCTION

The demand for teacher labour indicates that the distribution of subject teachers has not been carried out properly. Currently, a balance is needed between the need for teachers and the demand for teacher services with the availability of teacher services. This aims to more effectively overcome the problem of imbalance between the demand and supply of teaching staff (Isma et al., 2017). The demand for labour is generally related to the relationship between wage levels and the amount of work desired by employers. Factors that can influence this involve changes in wage levels, changes in consumer demand for final production results, and decreases in the price of capital goods (Kamal, 2020).

The tight competition drives an increase in demand for local workers who have skills and expertise market demands (Nurmayanti et al., 2018). If the number of labor demands decreases, this can result in a surplus of labor supply, which in turn can lead to high unemployment rates (Pramusinto et al., 2019). Each industrial sector certainly has a different number of labor demands, as is the case with the demand for labor in public and private schools. Public schools have a standard number of teachers adjusted by the government based on school needs. Meanwhile, private schools still have many teachers whose ratios do not match learning needs. Private schools have a very large role in determining the success of education in Indonesia. The number of private high schools is greater than that of public high schools, reaching 51.2% (BPS RI, 2024), but in fact the fulfillment of teacher needs in private schools is not comparable to public schools, of the 355,147 high school teachers in Indonesia, only 27.90% work in private high schools, especially in areas such as Jambi Province, teachers working in private high schools only reach 13.11% of the total number of teachers.

Jambi City is an area with the largest number of private schools in Jambi province. In Government Regulation Number 74 of 2008 concerning Teachers, Article 17 Paragraph (1), it is explained that the standard ratio of teachers and students at the Senior High School level is 1:20, meaning that one standard teacher teaches 20 students in one class. The following is data on the ratio of teachers to students at private high schools in Jambi City.

Table 1. Private High School Teachers in Jambi City

Interval Class			Frequency	Percentage (%)
34	-	40	2	6
27	-	33	0	0
20	-	26	3	9
14	-	19	8	25
8	-	13	12	38
2	-	7	7	22
Total			32	100

Source: Dapodik, 2024

Culture (Permendikbud) Number 23 of 2013 concerning Minimum Service Standards for Basic Education, explains that every Elementary School (SD) or Madrasah Ibtidaiyah (MI) is required to provide 6 teachers for each educational unit. Meanwhile, at the Junior High School (SLTP) level, it is expected that one teacher is provided for each subject. This provision aims to ensure the quality of basic education services by providing an adequate number of teachers according to the needs of each educational unit. With this standard, it is hoped that basic education can be organized more effectively and efficiently, and provide adequate support in the learning process.

Teacher overlapping tasks result in less than optimal teaching and education quality. Assigning teaching tasks to individuals who do not have the appropriate qualifications can also result in a decline in the quality of education. The long-term impact is a decline in student learning achievement and a decline in the overall quality of education (Joni, 2019). Specifically, according to (Wahidah & Istiyo-

no, 2020), changes in the demand for teacher labor are caused by the gap between the need and availability of teachers. It is necessary to adjust the need for teachers with the projected number of students, which includes assumptions regarding the student study load, teacher teaching load, class size, and the estimated number of teachers who will retire, move, leave, or continue their education. According to (Sunandar, 2006) in the context of changes in teacher needs, the causal factors involve changes in the number of students influenced by structural changes in the field of education and changes in the ratio between teachers and students.

The use of technology in an industry can significantly affect the number of workers needed (Cascio & Montealegre, 2016). Technology involves changes in production techniques, equipment improvements, increased worker skills, and efficiency in company management. Today's entrepreneurs adopt technology to speed up the production process and improve the quality of goods or services produced. Advanced technology is considered very important to speed up task completion, increase time efficiency, and produce high-quality products. The implementation of modern technology allows companies to work faster and more efficiently, which in turn can affect the need for workers. According to (Nurfiat & Rustariyuni, 2018) states that there are factors that can determine the rise and fall of labor demand, namely wage levels and technology.

With the increasing number of business units, companies need to recruit more workers to operate and support the production process. This phenomenon creates new opportunities in the world of work by opening up jobs to accommodate the increasing number of workers. The availability of the number of business units is closely related to the level of labor absorption, where the increasing number of business units will directly increase the need for workers in an industry. The number of business units from an economic perspective is generally the number of tools used in an in-

dustry, while in the research to be conducted, the number of units in the Education industry is learning facilities such as classrooms, laboratories and others. According to (Soca & Woyanti, 2021) states that in general, an increase in the workforce in the industrial sector can occur due to the growth in the number of business units. This phenomenon occurs because companies need more workers to carry out production activities within the scope of their business.

From the previous research exposure on employment issues, the differences in this study on the research subjects, which are the demand for labor in the education sector, namely teachers, the data in this study were taken directly at schools that were the population in this study, different from previous studies that focused on labor in the industrial sector, the data was taken secondary. This study focuses more on the variables of school facilities and technology, this variable is interesting to study because schools that have adequate school facilities and good use of technology do not affect the demand for labor in the education sector. So the goal to be achieved in this study is how school facilities and technology affect the demand for labor in private high school teachers in Jambi City.

METHODS

This study uses a quantitative method with a survey design type, with numerical data analysis, which is then assessed using appropriate statistical methods. In general, quantitative research is used in the context of inferential research to test specific hypotheses (Ahyar et al., 2020). And using multiple regression analysis, by using this technique, research can explore and measure the relative impact of various independent variables on dependent variables, providing a deeper understanding of the relationship between the two variables (Kadir, 2015).

The object of this study is 21 private high schools in Jambi City spread across several sub-districts in Jambi City. According to

Table 2. Operational Definition of Variables

Variable	Variable Definition	Indicator
School Facilities (X1)	School facilities cover all the needs required by students and educators with the aim of facilitating, smoothing and supporting the implementation of learning activities in the school environment.	School facilities and infrastructure
Technology (X2)	Technology is something that can make things easier for people all over the world, and its benefits are used as a means of carrying out daily activities carried out by humans in carrying out work or in obtaining information.	School Application or Website
Teacher Labor Demand (Y)	The demand for teacher labor is how much teacher labor is used in carrying out learning or educational functions in schools by schools or educational institutions.	Number of teachers teaching at school

(Sugiono, 2017), population refers to a generalization area consisting of objects or subjects with certain qualities and characteristics that have been determined by researchers to be used as study objects. The operational indicators are presented in Table 2.

The analysis technique used in this study is multiple regression statistical analysis, which is a statistical method used to analyze the influence of more than 2 independent variables with dependent variables, namely the influence of school facilities and technology on the demand for teacher labor. The partial significance test of influence uses the t-test and the simultaneous influence uses the F-test. The model quality test uses the determination coefficient value (R^2). To meet the requirements for using the regression test, a prerequisite analysis test is carried out, namely the normality test, heteroscedasticity, multicollinearity, and linearity. Data processing uses Eviews software version 12.

RESULTS AND DISCUSSION

The variables that are the focus of this study are, the school facility variable is the number of facilities and infrastructure owned by the school, the technology variable is the website/application and equipment used by the school in carrying out data input related to the school, the labor demand variable is teach-er data used by the school to carry out the learning process. The data in this study were obtained by distributing questionnaires related to the number of school facilities, the technology used the demand for labor is how many teachers the school has. The number of respondents in this study was 21 schools in Jambi City, and the method used was quantitative research. The description of the descriptive analysis in the study is explained in Table 3.

Table 3. Descriptive Research Data

	N	Min	Max	Mean	Std. Deviation
X1	21	7	39	21	9
X2	21	0	7	2	2
Y	21	9	38	19	7

Source: Processed Primary Data, 2024

From the data that has been presented, it shows that the school facilities variable (x1) has a minimum value of 7, a maximum value of 39, a mean of 21, and a standard deviation of 9. The technology variable (x2) has a minimum value of 0, a maximum of 7, a mean of 2, and a standard deviation of 2. Next, the labor demand variable (Y) has a minimum value of 9, a maximum value of 38, a mean of 19, and a standard deviation of 7.

Furthermore, with the same data, multiple regression analysis was carried out with the OLS (Ordinary Least Square) model. A regression model must meet several requirements, such as data that has a normal distribution, a linear relationship, no multicollinearity problems, and no heteroscedasticity (Sugiyono, 2010). The results of the analysis prerequisite test can be seen in Table 4.

Based on Table 4, all variable data have met the regression test requirements because they are normally distributed, there are no multicollinearity problems between independent variables, and there are no heteroscedasticity problems.

In evaluating potential problems in regression data, regression tests are used to assess the impact of independent variables (X) on dependent variables (Y). In multiple linear regression analysis using the Ordinary Least Square (OLS) method, it is necessary to test several specific statistical assumptions. This test involves examining the requirements that must be met so that the multiple linear regression analysis model can be relied on. By testing these assumptions, it can ensure the validity of the regression analysis model and the accuracy of the results. The results of multiple linear regression can be seen in Table 5.

Based on Table 5, the constant value of 3.029 shows the labor demand score if school facilities and technology are not used. The coefficient of the school facility variable has a positive value of 0.46 explaining that school facilities x1 have a direct relationship with labor demand (Y). Thus, it is known that the addition of 2 school facilities will cause an increase of 1 person (0.46 x 2 = 0.92) rounded to 1, then the labor demand (Y) is 1. This effect occurs significantly because the t-test value of 0.003 produced is smaller than 0.05 at alpha 5%.

Furthermore, the value of the technology variable (x2) is not significant at alpha 5%, but significant at alpha 10%, which means that the technology variable has a significant effect at the 10% error level on the labor demand variable (Y). The value of the technology regression coefficient (X2) of 0.95 indicates that technology (X2) has a direct relationship

Table 4. Summary of Analysis Prerequisite Tests

Regression Analysis Prerequisites	Prerequisite Analysis Techniques	Parameter	Criteria	Mark	Conclusion
Normality	Jarque-Bera Test	Sig	> 0.05	0.25	Normally Distributed
Heteroscedasticity	Glejser	Sig	> 0.05	0.87	Homogeneity
Multicollinearity	Varian Inflation Factors	VIF	< 10	1.34	No multicollinearity

Source: Processed Primary Data, 2024

Table 5. Multiple Linear Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.029	2.650	1.140	0.267
X1	0.460	0.140	3.410	0.003
X2	0.950	0.550	1.710	0.105
F-statistic	1.370			
Prob(F-statistic)	0.00024			

Source: Processed Primary Data, 2024

with labor demand (Y). Thus, it is known that the addition of 1 unit of technology (X2) will cause an increase of 1 unit of labor demand (Y) Based on the results above in the table, the F-Statistic value is 1.37 with a Prob value (F Statistic) of 0.00024 < 0.05, then it can be concluded that the independent variables of school facilities (x1) and technology (x2) have a simultaneous effect on the dependent variable of labor demand (Y) in this study. This shows that school facilities and technology together have an effect on labor demand. In mathematical form, this influence is described in the following model:

$$Y = 3.029 + 0.46X1 + 0.95X2 + \varepsilon$$

The model statistically has a high ability to predict the influence of school facilities and technology on labor demand. Supported by an R-square value of 60.4%. While the remaining 39.6% is influenced by other variables outside the study.

The Influence of School Facilities on the Demand for Teachers

Specifically, the demand for teachers in schools is usually through a recruitment process. According to (Aliyyah & Djuanda, 2018), recruitment is a systematic process for finding individuals who have the appropriate skills and expertise to become part of an organization's workforce. Expansion of educational facilities, improvement of facilities and infrastructure, including expansion of student admission capacity and development of educational programs, requires an increase in the number of appropriate educators. From the explanation above, the addition of facilities and infrastructure (facilities) can affect the amount of demand for workers (Akilah, 2018).

Based on the results of the analysis, it shows that the school facility variable has a significant influence on the demand for private high school teachers in Jambi City. This shows that the more facilities a school has, the more teachers are needed by the school to carry out

the learning process at school. Good facilities, such as decent classrooms, laboratories, libraries, and adequate teaching tools, can create a more productive learning environment. Thus, the existence of good facilities can attract potential teachers because they feel that they will be able to teach more effectively and that the school supports an optimal learning process for students (Podolsky et al., 2016). With supportive facilities, teachers also have greater opportunities to develop their skills and knowledge, both through training held by the school and through the provision of adequate teaching tools and materials. This can contribute to teacher job satisfaction and increase their interest in continuing to teach at the school (Toropova et al., 2021). So it is hoped that the more learning facilities can increase the demand for teachers (Rhomadhani et al., 2021). And the learning process at the school can run well.

In general, the results of the analysis of this study where facilities have a significant effect on labor demand, are in line with (Prabaningtyas, 2015) The number of business units used by the company shows a significant positive effect on labor absorption. Then this study is also in line with the results of research conducted by (Pamungkas, 2020) The business unit variable in this study shows a positive and significant relationship. Specifically, the results of this study are in line with research conducted by (Lama'atushabakh & Suklani, 2023) The reason why educational institutions, such as schools, make requests for educational personnel (teachers) is because of the need for new jobs and activities that are created, as well as the addition of new facilities and infrastructure. Schools also design new programs that require the presence of new teachers to run the program. Therefore, they need new prospective teachers to meet this need.

The Influence of Technology on Labor Demand

Technological advances provide a boost to labor efficiency, reduce production costs, and stimulate economic growth. In addition,

technological innovation also has the potential to create new jobs with high added value, as well as encourage the development of entrepreneurship in the technology sector, which can play a role in reducing unemployment rates (Soniansih et al., 2021).

Based on the results of the statistical t-test analysis, the technology variable has a positive effect on the Demand for Private High School Teachers in Jambi City at a 10% error rate. This shows that the increase in technology in the education process in private schools can contribute to the need for more teachers, especially to manage and facilitate technology-based learning (Ghavifekr & Rosdy, 2015).

In general, this study is in line with the study conducted by (Prabawa & Budhi, 2017) The use of increasingly modern technology has a positive and significant impact on labor absorption in the screen printing industry in Denpasar City. The results of this study are in line with the study conducted (Alifia, 2016) technology has a significant influence on labor absorption in the ceramic industry. This study is in line with the study conducted by (Yeni & Budhi, 2016) the increase in technology positively and significantly increases labor absorption in the wooden sculpture industry in Badung Regency.

The Influence of School Facilities and Technology on Labor Demand

The relationship between learning facilities and technology on labor demand is a continuous relationship. The provision of learning facilities and the addition of learning facilities and infrastructure can have an impact on labor demand, while technological developments open up wide opportunities for the emergence of new types of digital jobs, and this has the potential to have a positive impact on labor absorption.

The results of the F Statistic Test show a Prob value (F-Statistic) of 0.00024 < 0.05, so it can be concluded that the independent variables of school facilities (X1) and technology (X2) have a simultaneous effect on the dependent variable of labor demand (Y) in this

study. Furthermore, from the multiple linear regression test, the R-Square value was obtained of 0.604019, indicating the contribution of the influence of the School Facilities Variable (X1) and Technology (X2) on the Labor Demand Variable simultaneously by 60.4%. While the remaining 39.6% is influenced by other variables outside the study. This shows that school facilities and technology together affect labor demand. From these results, the number of school facilities will affect labor demand, the placement of the use of appropriate technology will affect labor demand.

In general, this study is in line with research conducted by (Prabawa & Budhi, 2017) technology has a positive and significant effect on the absorption of labor in the screen printing industry in Denpasar City. The results of this study are in line with research conducted (Alifia, 2016) technology has an influence on labor absorption. In general, this study is in line with research conducted by (Lilyawati & Sri Budhi, 2016) capital and technology have a positive and significant impact on labor absorption in the furniture industry in Denpasar City. Furthermore, this study is in line with research conducted by (Ariska, 2018) The increase in the number of industries will increase the demand for labor. And this study is also in line with research (Martayadi & Indraswati, 2021) there is a positive and significant relationship between the use of technology and labor absorption.

CONCLUSION

Based on the study that has been conducted, school facilities and technology have a significant impact on increasing the demand for teacher labor. Schools equipped with adequate facilities tend to seek highly qualified teachers, which in turn increases the demand for teachers. The availability of school facilities also affects the school's ability to recruit and retain experienced teachers, which are essential for an effective learning process using existing facilities and infrastructure. On the other hand, technology has a direct impact on

the quality of education provided to students. The use of technology can increase efficiency and reduce operational costs, which allows funds to be reallocated to other needs. Thus, increasing the allocation of other needs can strengthen the demand for new teacher labor. Overall, school facilities and technology play a crucial role in shaping the demand for teacher labor, both through improving teacher qualifications and the efficiency of using educational resources.

In addition, based on the results presented above, the researchers recommend improving the management of school facilities in the school environment to increase student acceptance capacity and employ more teachers. It is hoped that with more optimal management, there will be an increase in the utilization of facilities and good management can reduce the current unemployment rate. Although educational technology is developing rapidly, the role of teachers in learning design remains irreplaceable by technology.

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