

# THE EFFECT OF PROJECT-BASED LEARNING MODEL AND DIGITAL-BASED LEARNING MEDIA ON STUDENTS' EMPLOYABILITY SKILLS IN THE SUBJECT OF ACCOUNTING IN SMK NEGERI 1 GORONTALO CITY

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## ABSTRACT

Learning that is currently used in school teaching in the independent curriculum, namely the Project Based Learning Model (PJBL) is a learning model that uses projects / activities as a means of learning to achieve attitude, knowledge and skills competencies. This study aims to analyze the effect of project-based learning model and digital-based learning media on students' work skills in accounting subjects at SMK Negeri 1 Gorontalo City. The approach in this research is quantitative with causality. The type of data in this study is primary data through distributing questionnaires. The number of samples in this study were 156 students. The data analysis technique used is Multiple Regression with the help of SPSS version 21. The results of this study indicate that (1) the Project Based Learning (PjBL) learning model has a positive and significant effect on the work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City. (2) Digital-based learning media has a positive and significant effect on the work skills of students majoring in Accounting at State Vocational High School 1 Gorontalo City. (3) The Project Based Learning (PjBL) learning model and digital-based learning media together have a significant effect on the work skills of students majoring in Accounting at SMK Negeri 1 Gorontalo City.

*Keywords: [Learning\_Model, PjBL, Digital\_Learning\_Media, Employability\_Skills, Accounting\_Major}*

## 1. INTRODUCTION

[The needs of this day and age encourage students to be able to develop computer-based learning media. This is an adjustment as a student in welcoming this sophisticated era. Able or unable educators must do this. New standards are needed so that students will have the competencies needed in an age dominated by digital technology. Schools are challenged to find ways to enable students to succeed in work and life through mastery of creative thinking skills, flexible problem solving, collaboration and innovation.

In classroom learning, each teacher has his own methods that are considered appropriate and in accordance with the condition of students and the achievements expected by the teacher. There are several learning models currently used in school teaching in the independent curriculum, namely the Project Based Learning Model (PJBL) is a learning model that uses projects / activities as a means of learning to achieve attitude, knowledge and skills competencies. One of the main advantages of this strategy is a meaningful learning experience for students. By facing real challenges and completing projects that have an impact in the context of their lives, students can see the direct relevance of learning in the real world (1). In developing student skills, it requires the right learning model that aims to improve student skills. In the explanation above that the right model in developing

student skills is a Project-based learning model (PJBL), so researchers chose the Project Based Learning Learning Model as the subject in this study.

In this Project Based Learning model, the use of media is certainly needed in teaching and familiarising students in working on any project, especially the use of digital media which is currently needed in developing skills to prepare for the future of each student. Learning media is one of the components that cannot be replaced in the learning process. Through learning media, educators can achieve learning objectives as desired. That learning media can affect cognitive learning outcomes, so that students are able to improve their cognitive skills (2).

Based on preliminary observations at SMK Negeri 1 Gorontalo, that the use of digital media in the implementation of the Project Based Learning learning model is only used in a few subjects such as one of them is in the accounting computer subject in Class X and accounting cycle learning in class XI and Class XII which is the focus of the subject in this study, in this subject the PJBL learning model is implemented using the MYOB (Manage Your Own Business) application and also Microsoft Excel where students are taught how to prepare financial reports using these two applications. The research object focuses on Class X, Class XI and Class XII at SMK Negeri 1 Gorontalo. Based on the facts obtained in the field, it can be seen that in this day and age, everything depends on technological developments, encouraging teachers to use computer-based technology in terms of learning, especially if it is related to finance such as accounting subjects, so that students are also required to be able to master technology, especially computers, to be able to follow the learning flow.

In the independent learning curriculum, the learning process is centred on developing skills, building character or morals and non-technical abilities in students, so that at SMK Negeri 1 Gorontalo students are more focused on practical learning and project work that mostly uses digital technology. Especially in accounting subjects in class X students are more directed in project work using Microsoft Excel applications on computers and in class XI and class XII students are directed to use MYOB Accounting (Mind Your Own Business Accounting) applications. However, practice-based learning will not be successful if students cannot understand the theories related to accounting so that the level of student understanding in using the accounting theory taught by the teacher will greatly affect the development of student work skills.

The use of the Project Based Learning Model in the current learning process is very helpful in developing student skills that are useful in adjusting to the current work environment as a support for students' future work careers. This learning model not only develops students' skills but also helps develop a better character or attitude in students, for example, attitudes in the aspect of cooperation which is considered very important in students' lives in the future. Currently the era of cooperation and collaboration is considered important in the ethics of the world of work, because in the world of work not only individual skills are valued but also the ability to cooperate and collaborate with others to succeed in a job.

Based on the explanation above, the researcher is interested in examining the problem which will be formulated, studied and researched through research entitled: **“The Effect of Project Based Learning Model and Digital Based Learning Media on Students' Work Skills in Accounting Subjects at SMK Negeri 1 Gorontalo City”.**]

## 2. METHODS

[This research is located at SMK Negeri 1 Gorontalo which is located at Ternater Street, Tapa Village, Sipatana District, Gorontalo City. with the research period being conducted for 3 months, from April 2023 to June 2023. The approach in this research is quantitative with correlation. The data source in this study is primary data through distributing questionnaires and observations. The number of samples in this study were 156 students. The data analysis technique used is Multiple Regression with the help of SPSS version 21.]

### 3. RESULTS

#### [A. Descriptive Analysis Of Research

The results of descriptive analysis of each variable in this research are presented as follows:

Table 1. Descriptive Results of Variables

Research Variable	Number of Items	Theoretical Score		Skor data empirik		Mean	Standard deviation	Score	Criteria
		Min	Max	Min	Max				
Project Based Learning (PjBL) learning model	12	12	60	30.00	60.00	50.19	6.03	83.64%	Good
Digital-based learning media	10	10	50	22.00	50.00	40.15	5.77	80.29%	Good
Student work skills	16	16	80	38.00	80.00	64.65	8.10	80.81%	Good

Looking at Table 1. above, the impact of each score can be described as follows:

#### a. Project Based Learning Model (PjBL) Variable

Based on the results in Table 1. it can be seen that the percentage of the achievement score of the model Project Based Learning (PjBL) learning model variable is 83.64% which is in the 'good enough' category. This shows that students majoring in Accounting at Vocational High School (SMK) Negeri 1 Gorontalo city feel that model PjBL learning is quite mixed in having a positive impact on student learning, especially in terms of increasing students' critical thinking skills, collaboration, and creativity in projects that are relevant to the real world, such as simulating company bookkeeping, analysing financial statements, or making business plans.

#### b. Digital-based Learning Media Variables

Based on Table 1, it can be seen that in general the level of achievement score of computer-based learning media variables is 80.29% which is included in the 'very good' classification. This shows that students majoring in Accounting at Vocational High School (SMK) Negeri 1 Gorontalo city feel that digital media allows for more interactive and interesting learning methods because animations, graphics, and videos help students understand accounting concepts better.

#### c. Student work skills variable

Based on Table 1, it can be seen that the overall percentage of the achievement score for the student work skills variable is 80.81% which is in the 'good enough' category. This shows that students majoring in accounting at Vocational High School (SMK) Negeri 1 Gorontalo city have developed adequate skills, although there is still room for improvement where students are quite capable of doing bookkeeping, compiling financial reports, operating accounting software, and conducting fraud analysis.

#### B. Data Normality (Variable Normality)

The results of the One Sample Kolmogorov Smirnov test for the normality of the research variable data can be described as follows:

Table 2. Data Normality Test Results (SPSS 21 Data Processing, 2024)

		PjBL Learning Model	Digital-based Learning Media	Student Employability Skills
	N	156	156	156
Normal	Meran	42.3839	36.0627	54.9715
Parameterrsa,b	Std. Derviation	6.76036	6.31470	9.21406
Most Erxtremer	Absoluter	.049	.086	.068

Differrencers	Positiver	.046	.086	.068
	Nergativer	-.049	-.059	-.054
	Kolmogorov-Smirnov Z	.617	1.073	.846
	Asymptotic signifcancer (2-tailerd)	.841	.200	.471

From the table above, it can be clearly seen that the data normality test (Kolmogorov Smirnov) found that the research variables have a Kolmogorov Smirnov (KS) value that is smaller than the Z taberl value of 1.96 (standard Z). As well as a probability greater than 0.05 so that the data in this study fulfils the Normality test (Normally distributed data).

### C. Multiple Regression Analysis Results

#### 1. Multiple Regression Equation

The results of multiple regression analysis with the help of the SPSS programme are shown in Table 2 as follows:

Table 3. Regression Analysis Results (SPSS 21 Data Processing, 2024)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.396	3.027		2.113	.036
	PjBL Learning Model	.524	.085	.385	6.197	.000
	Digital-based Learning Media	.731	.091	.501	8.069	.000

Based on the results of the analysis, the modern multiple linear regression equation is:

$$\hat{Y} = 6,396 + 0,524X_1 + 0,731X_2 + \epsilon$$

#### 2. Simultaneous Test Results (F Test)

The results of simultaneous testing with the help of the SPSS 21 programme are shown in table 2. below:

Table 4 Simultaneous Test Results (SPSS 21 Data Processing, 2024)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8401.146	2	4200.573	135.070	.000 <sup>b</sup>
	Residual	4758.174	153	31.099		
	Total	13159.320	155			

Based on the table above, the value obtained F count for this study is 135.070 with a significant value or probability of 0.000. While at the 5% significance level, the F table value is 3.055 with df1 of k = 2 and df2 of N-k-1 = 156-2-1 = 153. The calculated F value obtained is much higher than the F table when these two F values are compared. Then, the probability value obtained from the test is smaller than the alpha value of 0.05. Therefore, the Projerct Based Learning (PjBL) learning model and digital-based learning media together have a significant effect on the work skills of students majoring in Accounting at Vocational High School (SMK) Nergeri 1 Gorontalo City.

#### 3. Partial Test Results (t Test)

The partial test results are shown in Table 5. as follows:

Table 5. Partial Test Results

No	Variabel	t <sub>hitung</sub>	P-Value	t <sub>tabel</sub>	Description
0	(Constant)	2.113	0.036		
1	PjBL Learning Model	6.197	0.000	1,976	Signifikan
2	Digital-based Learning Media	8.069	0.000	1,976	Signifikan

<sup>ns</sup> Not Signifikan

\*Significant at the 0.1 level (2-tailed)

\*\* Significant at the 0.05 level (2-tailed)

\*\*\*Significant at the 0.01 level (2-tailed)

Based on the results of the analysis above, the partial test results of this study can be explained:

1) Partial Test Interpretation of Project Based Learning Model (PjBL) Variables

Based on the analysis, the t-test value for the Project Based Learning (PjBL) learning model variable is obtained at 6.197 while the t-table value is 1.976. The calculated t value still exceeds the t table value when the two t values are compared ( $6.197 > 1.976$ ). The significance value of the Project Based Learning (PjBL) learning model is smaller than the probability value of 0.05, or the value ( $0.000 < 0.05$ ), then at that point  $H_{a1}$  is recognised / accepted. So that the Project Based Learning (PjBL) learning model has a positive and significant effect on the work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City.

2) Interpretation of Partial Test of Digital-based Learning Media Variables

Based on the analysis, the t-count value for the Project Based Learning (PjBL) learning model variable is obtained at 8.069 while the t-table value is 1.976. The calculated t value still exceeds the t table value ( $8.069 > 1.976$ ) when the two t values are compared. The importance value of t on the computerised learning media variable is 0.000. Because the value of ( $0.000 < 0.05$ ) the significance value of digital-based learning media is smaller than the probability value of 0.05,  $H_{a2}$  is accepted. Therefore, digital-based learning media has a positive and significant effect on the work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City.

**D. Classical Assumption Testing**

1. Residual Normality

The Normal Probability Plot results for the normality test are presented in Figure 1 below :

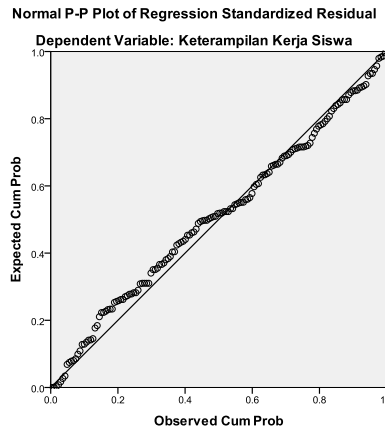


Figure 1. Graph of Normal Probability Plot Testing Results

The data (points) are scattered around the diagonal line and move in that direction, as shown in this figure. So the information in this regression model fulfils the Assumption of Data Normality. Meanwhile, the result of the One Sample Kolmogorov Smirnov test can be described as follows:

Table 6. Residual Normality Test Results

		Unstandardized Residual
N		156
Normal Paramerters <sup>a,b</sup>	Meran	.000000
	Std. Dervation	5.54056837
Most Erxtremer	Absolurter	.074

Differrencers	Positiver	.048
	Nergativer	-.074
Kolmogorov-Smirnov Z		.925
Asymp. Sig. (2-tailerd)		.360

From the table above, it can be seen that the data normality test (Kolomogorov Smirnov) found that the residual value has a Kolomogorov Smirnov (KS) value of 0.925 which is smaller than the Z table value of 1.96 (standard Z). As well as a probability of 0.360 which is greater than 0.05 so that the data in this study fulfils the Normality test (Normally distributed data).

## 2. Multicollinearity Testing

The results of testing the classic assumptions of multicollinearity using SPSS 21 are presented as follows:

Table 7. Multicollinearity Testing

Model	Model	Collinearity Statistics	
		Tolerance	VIF
	(Constant)		
1	PjBL Learning Model	.613	1.630
	Digital-based Learning Media	.613	1.630

Based on the results in the table above, it can be seen that the Project Based Learning (PjBL) learning model variable has a VIF value of 1.630. Then the value of digital-based learning media is 1.630. The VIF value is not right at the standard number 10. So in this review there are no symptoms of murtikolinearity or the multicollinearity test of exploratory information is fulfilled.

## 3. Heteroscedasticity Test

Heteroscedasticity test is a test that expects to test whether in a regression there are differences in Varience with Residual Data that exist today. The following are the results of the heteroscedasticity test:

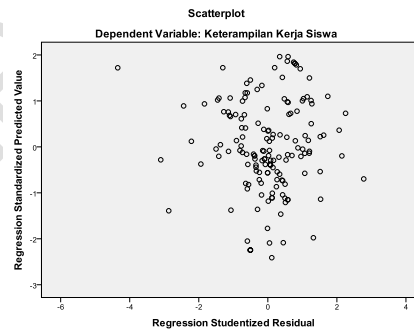


Figure 2. Heteroscedasticity Testing Results

Based on the picture above, it can be seen that the points spread randomly and spread both above and below zero on the Y axis. Therefore, it can be concluded that the regression model does not occur heteroscedasticity.

## DISCUSSION

### 1. The effect of the Project Based Learning (PjBL) learning model on student work skills

The results obtained from descriptive testing obtained the level of achievement score on the Project Based Learning (PjBL) learning model variable is 83.64% which is in the 'good

enough' category. This shows that students majoring in Accounting at Vocational High School (SMK) Negeri 1 Gorontalo city feel that the PjBL learning model is quite capable of having a positive impact on student learning, especially in terms of improving students' critical thinking skills, collaboration, and creativity in projects that are relevant to the real world, such as simulating company bookkeeping, analysing financial statements, or making business plans. However, this condition, which is a good enough criterion, still needs some improvement such as teacher training in the PjBL method, provision of adequate resources, and increased support from the school and parents. Thus, PjBL can be optimised to produce graduates who are competent and ready to compete in the world of work in accounting-related fields.

The results of testing the first hypothesis with multiple regression analysis found that the Project Based Learning (PjBL) learning model has a positive and significant effect on the work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City with a partial determination coefficient of 26.80%. The better and more effective the use of the Project Based Learning (PjBL) learning model in learning activities, the better the work skills of students majoring in Accounting at SMK Negeri 1 Gorontalo City. This is because PjBL offers a challenging and contextual learning approach, which is directly relevant to the world of work.

The PjBL learning model is able to stimulate problem solving in students. Thus, Project Based Learning (PjBL) is a learning model that emphasises the exploration of real problems and practical solutions through projects that students work on collaboratively (3). This model has been shown to have a significant impact on students' employability skills. One of the main influences is the improvement of critical thinking skills. In PjBL, students are invited to identify problems, design solutions, and implement projects that are relevant to the real world. This process requires students to analyse information, evaluate alternative solutions and make decisions based on data and logic. The Project Based Learning (PjBL) learning model contributes significantly to the development of students' employability skills through improved critical thinking skills, collaboration, time management, organisation and learning motivation. Thus, PjBL becomes one of the effective learning approaches in preparing students for the challenges in the modern world of work.

## **2.The effect of digital-based learning media on student work skills**

The results obtained from descriptive testing obtained that the level of achievement scores on computer-based learning media variables is 80.29% which is in the 'good enough' category. This shows that students majoring in Accounting at Vocational High School (SMK) Negeri 1 Gorontalo city feel that digital media allows for more interactive and interesting learning methods because animations, graphics, and videos help students understand accounting concepts better. Platforms such as Google Classroom, Moodle, or Edmodo are used to manage learning materials, assignments, and communication between teachers and students. Then students are taught to use accounting software such as MYOB, Zahir, or Accurate. The use of this software allows students to understand the process of bookkeeping and fraud reporting in a more practical and efficient way. Thus, digital-based accounting simulations provide students with practical experience in carrying out accounting tasks, such as the preparation of financial statements or the analysis of financial data. Although there have been significant efforts in integrating technology in learning, there are still some aspects that require improvement to achieve more optimal results.

The results of testing the second hypothesis with multiple regression analysis found that digital-based learning media has a positive and significant effect on the work skills of students majoring in Accounting subjects at Vocational High School (SMK) Negeri 1 Gorontalo City with a coefficient of determination of 37.10%. The more adequate and qualified the digital-based learning media, the better or better students' work skills at SMK Negeri 1 Gorontalo City will be in completing and understanding various materials related to

accounting. Digital-based learning media offers a variety of benefits that directly affect students' ability to understand and master subject matter.

That learning media can affect cognitive learning outcomes, so that students are able to improve their cognitive skills (4). Digital-based learning media has become an important tool in modern education, offering a range of significant benefits to students' employability skills. The use of digital media also facilitates adaptive and personalised learning, allowing students to receive immediate feedback and customisation of materials according to student needs. This not only enhances learning effectiveness but also prepares students to face various workplace situations with high flexibility and adaptability. Digital learning media contributes significantly to the development of students' employability skills through the enhancement of technology, communication, self-management, analysis and adaptation skills. By utilising digital technology, students are better prepared to face challenges in the ever-evolving world of work.

### **3.Effect of Project Based Learning (PjBL) learning model and digital-based learning media on student work skills**

The results of descriptive testing found that the percentage of achievement scores for the student work skills variable was 80.81% which was in the 'good enough' category. This shows that students majoring in Accounting at Vocational High School (SMK) Negeri 1 Gorontalo City have developed adequate skills, although there is still room for improvement where students are quite capable of doing bookkeeping, compiling financial reports, operating accounting software, and conducting spatial analysis. These technical skills are very important as they reflect students' ability to practically apply accounting knowledge. This also means that the school has been quite successful in equipping students with the basic skills needed in the world of work. To achieve better results, there needs to be continuous efforts in improving access to resources, teacher training, real work experience, and student motivation and discipline. Thus, it is expected that students can be better prepared and competent to face challenges in the world of work and achieve success in careers related to the field of accounting.

The results of using multiple regression analysis to test the third hypothesis found that the Project Based Learning (PjBL) learning model and digital-based learning media together have a significant effect on the work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City. So that students' work skills will get better if students are taught with an interesting Project Based Learning (PjBL) learning model combined with the use of digital-based learning media in accordance with the times or digitalisation in learning. As much as 63.40% of the variability of work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City can be explained by the Project Based Learning (PjBL) learning model and digital-based learning media, while the remaining 36.60% can be explained by other variables not examined in this study such as student learning motivation, learning interest, learning strategies, teacher classroom management, peer tutors, and learning environment.

That student learning outcomes can be optimised with project learning models and digitalisation in learning. The combination of PjBL and digital media encourages innovation and creativity. Digital media provides a variety of tools for visualisation and simulation that can assist students in designing and testing student ideas (3). With PjBL, students are encouraged to think creatively and come up with innovative solutions to problems encountered in student projects. In the world of work people are always looking for better and new ways of doing things, it is these skills that are highly valued. Thus, the integration of the Project Based Learning (PjBL) learning model with digital-based learning media has a strong influence on students' employability skills. This combination not only improves technical and managerial skills, but also develops communication, collaboration, creativity and motivation skills that are essential for success in today's and tomorrow's workplace.

## 4. CONCLUSION

[Based on the results of the research and discussion, the following conclusions are drawn:

1. The Project Based Learning (PjBL) learning model has a positive effect on the work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City. The better and more effective the use of the Project Based Learning (PjBL) learning model in learning activities will improve the work skills of students majoring in Accounting subjects.
2. Digital-based learning media has a positive effect on the work skills of students majoring in Accounting in Gorontalo City State 1 Vocational High School. The more adequate and quality digital-based learning media, the better students' work skills or being able to complete and understand various materials related to accounting.
3. The Project Based Learning (PjBL) learning model and digital-based learning media together have a significant effect on the work skills of students majoring in Accounting in Vocational High School (SMK) Negeri 1 Gorontalo City with a coefficient of determination of 63.40%. While the remaining 36.60% can be explained by other variables not examined in this study such as student learning motivation, learning interest, learning strategies, teacher classroom management, peer tutors, and learning environment. So that students' work skills will get better if students are taught with an effective Project Based Learning (PjBL) learning model combined or integrated with the use of digital-based learning media that is in line with the times or digitalisation in learning.]

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