The Effect of Website Development Training for Handayani Vocational High School Students and Jeneponto Vocational Schools Using Paired T-test

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Abstract

Vocational students are expected to have competence in order to be accepted in the industrial world. Website is one of the means used in the industrial world not only to coordinate work, but more broadly for product marketing, complaints and customer service. This training aims to make vocational students who carry out Field Work Lecture activities at STMIK Professional have the competence to create a simple website. The students who took part in the training on making this website came from SMK Handayani and SMK Jeneponto majoring in computer and network engineering. The stages of website creation training consist of the preparation, implementation and evaluation stages. Preparation is done by providing questionnaires, learning modules. The implementation was carried out at STMIK Professional Makassar with material for website creation with PHP, Boostrap and MySql. The post-test and pre-test assessment methods were tested using the paired t-test. The results of the analysis of the effectiveness of training activities show that students have a difference in the average score before and after training with a t-count of -6.08375.
Keywords : Website, PHP, Bootstrap, Mysql, Paired Sample T-Test

1. Introduction

The COVID-19 pandemic seems to emphasize the importance of using technology for the industrial world. The website is used as a bridge between the company and the community. The company applies technology in company activities ranging from archives, sales, services and consumer complaints.

Vocational High School students are students from the secondary education level who are expected to be ready to use workers. Practical learning and training are the keys to the success of students from vocational high schools so that they can adapt to the industrial world [1].

According to open unemployment data from the Central Statistics Agency as of August 2021, Vocational Students or Vocational Schools are in second place with graduates contributing to unemployment in Indonesia with a total of 2,111,338 people[2].

Changes in the way the industrial world works are not accompanied by the number of workers who have competence in making websites [3]. Vocational High School students should have competencies that keep up with the times so that they can be absorbed in the world of work.

Therefore, we carry out website creation training for students of SMK Handayani Makassar and SMK Jeneponto. It is hoped that the training that we provide will be able to increase the competence of students so that they are ready to compete with other graduates from the same education level or from a higher level of education.

2. Research methods

2.1 PKM Implementation Method

The PKM activities for KKLP students of SMK Handayani and SMK Jeneponto were attended by seven students. In the implementation of the training we use three stages, namely preparation, implementation and evaluation. Preparation is done by making materials related to website creation. The website training method can be seen in table 1.1

No	Theory	Activity
1.	Pretest	Individual Test
2.	Internet dan Website dan Web Scraping pada Market Place	Lectures and discussions
	Web server installation and configuration	Lectures, tutorials and practice and questions and answers
3.	Bootstrap 4 and templates	Lectures, tutorials and practice and questions and answers
4.	Database with Mysql	Lectures, tutorials and practice and questions and answers
5.	Connection to database with PHP	Lectures, tutorials and practice and questions and answers
6.	Creating CRUD data	Lectures, tutorials and practice and questions and answers
7.	Webhosting	Lectures, tutorials and practice and questions and answers
8.	Material Review	Lectures, tutorials and practice and questions and answers
9	Independent task	Individual Practical Assignments
10	Post Test	Individual Test

Table 1.1 Material delivery method

To measure the success of implementing PKM activities for students of SMK Handayani and SMK Jeneponto, we conducted a pretest and post test as well as a partner satisfaction questionnaire as an assessment instrument. The effect of website creation training on partner's

initial and final competence was measured by paired sample t-test. Meanwhile, the satisfaction of PkM participants was measured using a Likert scale.

2.2 Literature Review

Paired sample t-test (paired sample t-test) is a tool to measure the hypothesis in which the data used are not independent (pairs). In the paired sample T-test, one individual was given two different treatments, resulting in two data samples [4]. In this website creation training, students are given a pretest and post-test to measure the effect of training on increasing student competence.

The hypothesis of this case is written as follows:

$$H_o = \mu_1 - \mu_2 = 0$$

$$H_1 = \mu_1 - \mu_2 \neq 0$$

H_a means that the actual difference between the two means is not zero.

The paired T-test formula is as follows:

$$t_{Hitung} = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{x_{1^2}}{n_1} + \frac{S_{2^2}}{n_2} - 2r\left(\frac{S_1}{\sqrt{n_1}}\right)\left(\frac{S_2}{\sqrt{n_2}}\right)}} \ldots (1)$$

Accept Criteria H_0 if –t tabel < t hitung < t tabel

Likert scale is a scale used to measure attitudes, opinions and perceptions of a person and a group of people towards a phenomenon or symptom that occurs in society [5].

The Likert scale stage consists of:

a. The weights or liker scores are as follows:
   1. Very good rated 5
   2. Good rated 4
   3. Enough to be rated 3
   4. Not good given a score of 2
   5. Not good rated 1

b. Calculation of Criteria Value

$$Skor\ Kriterium = nilai\ skala * jumlah\ resonden \ldots\ldots (2)$$

c. Calculation of the percentage of approval to find out the number of answers from respondents through percentages$p = \frac{f}{n}\ x\ 100 \ldots . (3)$

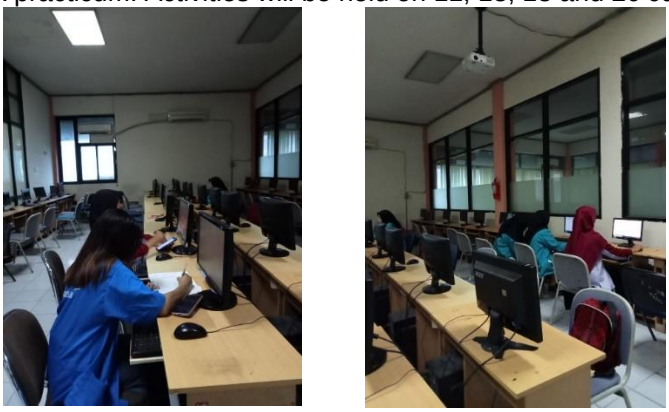
2.3 PKM Activities

The Community Service Program (PKM) for students of SMK Handayani Makassar and SMK Jeneponto was attended by 11 students which was held at STMIK Professional Makassar. PKM activities began with a workshop related to Web Scraping for the marketplace.

Figure 1. Web scraping workshop for market place

The web scraping workshop for the marketplace was held on January 8, 2021. The speakers for this activity were Mr. Medy Wisnu Prihatmono and Mrs. Siti Arni.

The training stage for website creation using boostrap, php and mysql was carried out in the professional stmik practicum. Activities will be held on 11, 13, 18 and 20 January 2021.



Picture 2. Website Development Training with Bootstrap, php and MySql

The material for making a website using boostrap, php and mysql was done by Mrs. Siti Arni, Johar Nur Iin and Mr. Dikwan Moes. The material related to the creation of databases, tables and CRUD data results can be seen in the image below:

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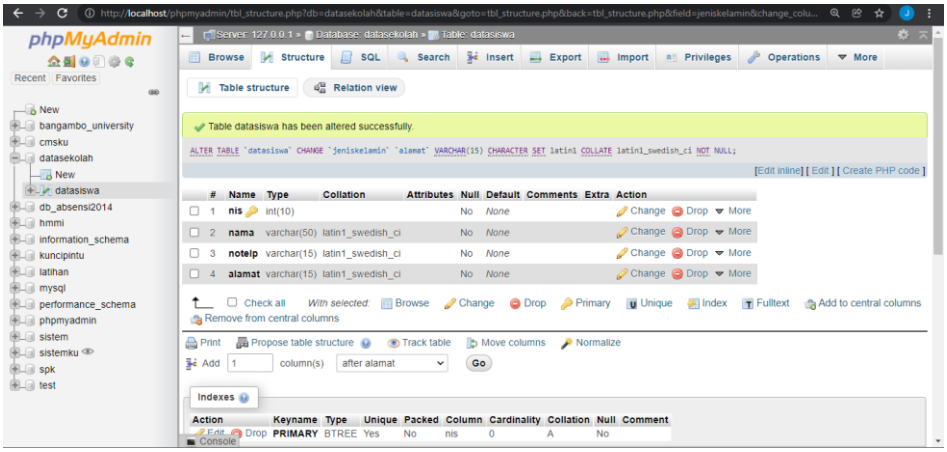

Figure 3. Database creation materials

```
<?php

//Mendefinisikan Konstanta
define('HOST','localhost');
define('USER','root');
define('PASS','');
define('DB','datasekolah');

//membuat koneksi dengan database
$koneksi = mysqli_connect(HOST,USER,PASS,DB) or die('Unable to Connect');
?>
```

Figure 4. Database connection with PHP

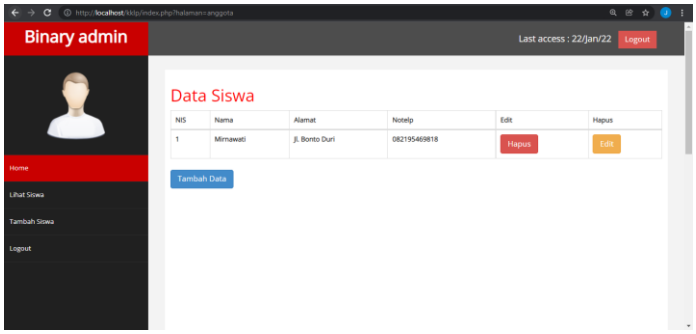

Figure 5. Bootstrap Template

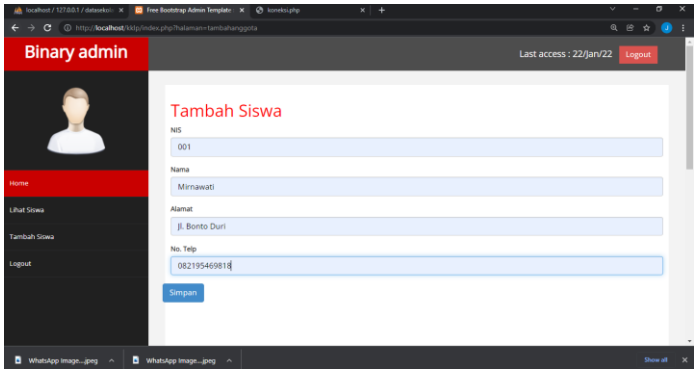

Figure 6. Add data form

3. Results and Discussion

In this PKM activity, we made a list of questions to determine the initial understanding and understanding of partners after the PKM activity. The number of students who filled out the list of questions before the PkM activity was seven people. The questions and the results of student answers from the pre-test and post-test can be seen in table 2.

Tabel 2 Post and pretest questions

No.	Questions	PreTest		Post Test	
		B	S	B	S
1.	Website is …	**3**	**4**	**5**	**2**
2.	Mysql is …	**1**	**6**	**5**	**2**
3.	Bootstrap is …	**1**	**6**	**5**	**2**
4.	Functions of the Webserver…	**2**	**5**	**5**	**2**
5	The proper script to create a table with bootstrap is…	**2**	**5**	**5**	**2**
6	What applications are used to create a local server…	**1**	**6**	**6**	**1**
7.	The proper PHP to mySql connection script is…	**1**	**6**	**5**	**2**
8.	The proper mysql script to add data is …	**1**	**6**	**6**	**1**
9.	The proper mysql script to delete data is …	**1**	**6**	**5**	**2**
10.	The proper mysql script to edit data is …	**1**	**6**	**5**	**2**
11.	The proper mysql script to display the data is …	**1**	**6**	**5**	**2**
12.	Web hosting is …	**1**	**6**	**6**	**1**
13.	The data type in database field creation is used for…	**1**	**6**	**5**	**2**
14.	The proper script to create a button in bootstrap is…	**1**	**6**	**5**	**2**
15.	The form script for proper data input in bootstrap is…	**1**	**6**	**5**	**2**
16.	The functions of PHP in website development are…	**1**	**6**	**6**	**1**
	Total	**20**	**92**	**84**	**28**

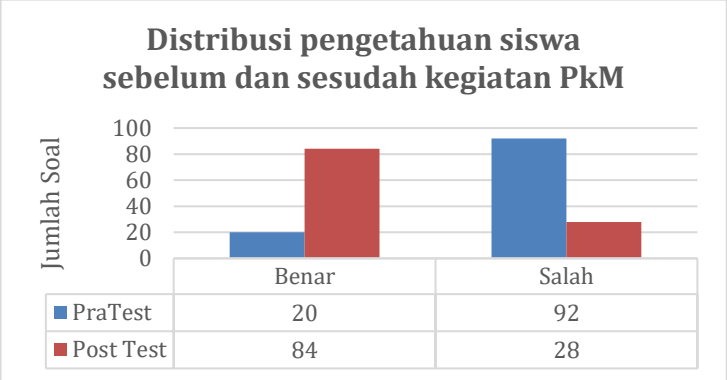

Figure 7. The level of knowledge of students before and after PkM

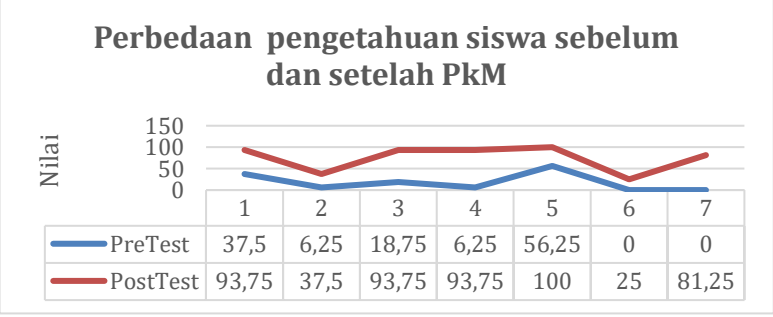

Figure 8. Increasing individual understanding before and after PkM

Based on Figure 8, it can be seen that all students experienced an increase in knowledge. However, two of the seven students did not experience a significant increase in understanding, namely the second and sixth students. The average score of students on the pretest is 17.85. The average post-test score is 75.

H_0 : There is no difference in the average score before and after training
H_1 : There is a difference in the average score before and after training

Participant	Pre Test	Post Test
1	37.5	93.75
2	6.25	37.5
3	18.75	93.75
4	6.25	93.75
5	56.25	100
6	0	25
7	0	81.25
Average	17.85714	75
Standard Deviation	21.47812	30.61862
Varians	461.3095	937.5
Dk	$n_1 - n_2 - 2$	12

Table 3. Average value

Average difference	-57.1429
Var 1/n_1	65.90136
Var 2/n_2	133.9286
Correlation coefficient	0.593989
2 * Correlation coefficient	1.187977
Standard deviation/root n_1	8.117965
Standard deviation/root n_2	11.57275
t-Hitung	**-6.08375**
t-Tabel	**2.178813**

Table 4. Test Results –T Sample in pairs

Criteria H_0 accepted when –t tabel < t hitung < t tabel.
Meanwhile –2.178813 < -6.08375 < 2.178813l then H_0 ditolak H_1 accepted, where the website creation training had an effect on increasing the competence of the Handayani Vocational High School and Jeneponto Vocational School students, which was marked by the difference in the average scores before and after the training.

In addition to the partner's initial and final understanding questionnaire, we propose partner satisfaction regarding the content and delivery of the material. Seven students of SMK Handayani and SMK Jeneponto filled out the partner satisfaction questionnaire. Measurement of partner satisfaction is carried out using a Likert scale for website creation training with boostrap, PHP and MySQL as follows:

Table 5. **Criteria Score**

Scale	Criteria Score
Very good	5 x 7 =35
Good	4 x 7 =28

Fair	3 x 7 =21
Poor	2 x 7 =14
Very Poor	1 x 7 =7

Table 6. Rating Scale

Scale	Answer Rating
Very good	35-29
Good	28-22
Fair	21-15
Poor	14-8
Very Poor	7-0

The results of the frequency of answers to the student response questionnaire according to equation (1) can be seen in the following table:

Rating Category	Frequency	Likert Scale
Very good	5	25
Good	2	8
Fair	0	0
Poor	0	0
Very Poor	0	0
Total		33

Table 7. The frequency of answers to the questionnaire related to the material is organized and easy to understand

Rating Category	Frequency	Likert Scale
Very good	4	20
Good	3	12
Fair	0	0
Poor	0	0
Very Poor	0	0
Total		32

Table 8. The frequency of answers to questions related to the material is very relevant and has been in accordance with my expectations before participating in service activities

Rating Category	Frequency	Likert Scale
Very good	4	20
Good	3	12
Fair	0	0
Poor	0	0
Very Poor	0	0
Total		32

Table 9. The frequency of answers to questions related to the material is enough for me to be able to create a website with boostrap, php and mysql

Rating Category	Frequency	Likert Scale
Very good	5	25
Good	2	8
Fair	0	0
Poor	0	0
Very Poor	0	0

Total	33

Table 10. Frequency of questionnaire answers related to understanding the material represented

Rating Category	Frequency	Likert Scale
Very good	4	20
Good	3	12
Fair	0	0
Poor	0	0
Very Poor	0	0
Total		32

Table 11. Frequency of answers to questionnaires regarding assistant presenters assisting in training assistance

Rating Category	Frequency	Likert Scale
Very good	5	25
Good	2	8
Fair	0	0
Poor	0	0
Very Poor	0	0
Total		33

Table 12. The frequency of answers to the questionnaire related to the allocation of time for delivering the material

Rating Category	Frequency	Likert Scale
Very good	5	25
Good	2	8
Fair	0	0
Poor	0	0
Very Poor	0	0
Total		33

Table 13. The frequency of answers to the questionnaire related to the presenters represents the content of the material well, easy to understand and implement

Percentage of approval to find out the number of answers from PKM participants through the percentage according to equation (2)

Rating Category	Likert Score	Approval Percentage
Isi Materi		
The material is organized and easy to understand	33	$p_1 = \frac{33}{35} x100 = 94\%$
The material is very relevant and has met my expectations before participating in PkM activities	32	$p_1 = \frac{32}{35} x100 = 91.4\%$
The material is enough for me to be able to make a website with boostrap, php and mysql	32	$p_1 = \frac{32}{35} x100 = 91.4\%$
Submission or presentation of material		

The presenter understands the material presented	33	$p_1 = \frac{33}{35} x100 = 94\%$
Assistant Speakers assist in training assistance	32	$p_1 = \frac{32}{35} x100 = 91.4\%$
Time allocation for material delivery	33	$p_1 = \frac{33}{35} x100 = 94\%$
The presenters represent the content of the material well, easy to understand and implement	33	$p_1 = \frac{33}{35} x100 = 94\%$

Table 13. Results of student response analysis

4. Conclusion

This website creation training with Boostrap, PHP and Mysql has contributed to increasing students' understanding regarding website creation. The result of measuring the average score of students on the pretest is 17.85. Meanwhile, the average score of students in the post-test was 75. The post-test and pre-test assessment methods were tested using the paired t-test. The results of the analysis of the effectiveness of training activities show that students have a difference in the average score before and after training with a t-count of -6.08375.

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