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Effect of practicum facilities in learning outcomes on automotive electricity

Abstract

Based on the results of observations & interviews with civil service teachers at SMK N 4 Kerinci, it was found that there were still student learning outcomes in the automotive electricity subject at SMK Negeri 4 that did not meet the KKM. This problem is thought to be due to a lack of learning media that supports students and there is no complete practical equipment available for basic automotive electrical learning. The aim of the research is to determine the influence of practicum facilities on the automotive electrical learning outcomes of students in the Automotive Engine Program at SMK Negeri 4 Kerinci. Using a pre-experimental research design (one-group pre-post test design) with 140 populations & 20 samples, the sampling technique used purposive sampling technique. The conclusion of this research is that there is an influence of practicum facilities on the automotive electrical learning outcomes of students at SMK N 4 Kerinci. It is recommended that teaching staff be able to optimize the learning process using practicum facilities to improve student learning outcomes in automotive electricity.

Keywords.: Practical Facilities, Learning Outcomes, Automotive Electricity

Introduction

Based on the results of observations & interviews with student teachers at SMK N 4 Kerinci during the PPL, it is found that there are still student learning outcomes in the automotive electrical subject of SMK Negeri 4 that have not met the KKM. With a total of 1 class of students, the practical theory scores of 22 students who have met the KKM ≥ 75 are 14 students and 8 students who have not met the KKM. Ideally what should happen is that the scores of 22 students meet the KKM determined by the school. In this problem, it is suspected that due to the lack of learning media that supports students and the availability of complete practicum tools, the learning of basic automotive electricity has not been fully maximised, such as the practicum workshop room and practicum components, some of which are incomplete.

Teachers who teach using hands-on practical learning methods, before starting learning the teacher first conditions the students to start automotive electrical practicum, and some students have readiness to learn such as discipline, entering class on time. Before practicum students actively ask questions and pay attention to the teacher. And there are also some learners who do not pay attention to the teacher who is explaining the material and talking when the teacher explains. During the practicum, students must take turns using practical tools because of the lack of tools in the practicum. The foregoing can affect students' interest in practicum so that it can affect student learning achievement, the completeness of practicum tools that are not appropriate certainly disrupts students' interest in learning because vocational high schools (SMK) must achieve good student competence.

Practical tools are automotive electrical learning aids that function to facilitate the teaching and learning process of automotive electricity so effectively for vocational school students because

practical tools can be known, understood and even at some point can be applied in society, especially in the automotive field. With adequate equipment facilities as available, it is expected to increase student learning motivation. In accordance with what happens to students of SMK Negeri 4 Kerinci, poor learning achievement is not necessarily caused by the student's ignorance, because it is often found that there are students who are lazy and underachieve in certain subjects but are active and achieve in other subjects. In responding to lessons in class, there are some students who can follow the lessons well and enthusiastically, but there are also students who seem lazy and lack enthusiasm in following the lessons and there are even students who do not like certain subjects at all.

Automotive electrical subjects are a lesson that is no less important than other lessons in the field of automotive engineering, therefore learning automotive electrical practices is directed at improving students' abilities and talents in the field of engineering. So that researchers are interested in examining the effect of practicum facilities on the learning outcomes of automotive electricity students at SMK Negeri Kerinci.

Methods

This study used a pre-experimental research design (one-group pre-post test design) with 140 population & 20 samples sampling technique using purposive sampling technique. When researching all data has been filled in completely. Then continued with coding or data coding is used when converting words into numbers, namely Wrong to 0 Right to 1. After all the questionnaires are filled in correctly, the data is then entered into the master table and processed computerised in this study starting from entering the initials of the name, age, value of the number of correct pretest value categories & posttest values into excel. The data is then entered into the computer using the SPSS programme and processed or tested using the normality test and the wicoxon test according to the needs of the researcher.

Finding and discussion

Finding

The following is the Average Learning Outcomes of Automotive Electricity Students of SMK N 4 Kerinci Before Being Given Learning with Practical Facilities.

Table 1. Average learning outcome before treatment

Variable	Mean	Median	Standard Devisation	Min-Max
Learning outcomes	40,75	30,00	21,901	10-75

Based on the table above, it can be seen that the average learning outcomes of automotive electricity in students of SMK N 4 Kerinci before learning with practicum facilities is 40.75 with a minimum of 10 and a maximum of 75.

Table 2. average learning outcome after treatment

Variable	Mean	Median	Standard Devisation	Min-Max
Learning outcomes	95,00	95,00	5,130	85-100

Based on table 2 above, it can be seen that the average learning outcomes of automotive electricity in students of SMK N 4 Kerinci after learning with practicum facilities is 95.00 with a minimum of 85 and a maximum of 100.

Table 3. Normality Test Results

Hasil belajar	Shapirowilk		
	Statistic	Df	Sig.
Sebelum	,886	20	,022
Sesudah	,837	20	,003

Based on the results of the normality test in table 3, it shows that the results of the shapirowilk test of learning outcomes before and after being given practicum facilities <0.05 . normality test using Shapiro wilk with a significance level > 0.05 means that the distribution of data is found to be not normally distributed so that it is continued with a non-parametric test, namely the Wilcoxon test.

Table 4. Wilcoxon test

Hasil Belajar	Rata-Rata $\pm$ Standar Deviasiasi	P Value
Sebelum	40,75 $\pm$ 21,901	0,000
Sesudah	95,00 $\pm$ 5,130	

Based on table 4, it is found that the average learning outcomes of automotive electricity before being given practicum facilities are 40.75 ± 21.901 while the average learning outcomes of automotive electricity after being given practicum facilities are 95.000 ± 5.130 . Based on the results of statistical tests using the Wilcoxon Signed Ranks Test, it was found that p Value = 0.000 with a value of $\alpha = 0.05$ ($p < \alpha$) means that there is an effect of practicum facilities on the learning outcomes of automotive electricity at SMK N 4 Kerinci.

Discussion

Based on bivariate analysis, the average learning outcomes of automotive electricity before being given practicum facilities are 40.75 ± 21.901 and 95.00 ± 5.130 after being given practicum facilities. Based on statistical tests using the Wilcoxon Signed Ranks Test, the P value = 0.000, with a value of $\alpha = 0.05$ ($p < \alpha$), meaning that there is an effect of practical facilities on the learning outcomes of automotive electricity students of SMK Negeri 4 Kerinci.

In accordance with the theory (Huda, 2016) the importance of practical equipment can help students better understand the material so that they can achieve higher learning outcomes. This is evidenced in this study that complete and very complete practical equipment provides learning outcomes that reach almost 100% meeting KKM. After that, a statistical test was carried out using the Wilcoxon test to determine whether there was an influence before being given practical facilities and after being given. The results obtained before and after being given practicum facilities $p=0.000$ with $\alpha = 0.05$. This shows that there is an influence of practicum facilities on the learning outcomes of students of SMK N 4 Kerinci.

In this study, the practicum facilities provided to vocational students are very effective because they can affect the learning outcomes of automotive electricity in students of SMK N 4 Kerinci, it can be seen from the changes that occur, when before being provided with practicum facilities the average learning outcomes of automotive electricity are still low and after being provided with practicum facilities the average student learning outcomes increase. This proves that there is an influence of practicum facilities on the learning process so that students in order to achieve maximum learning outcomes need practicum facilities to support the learning process to be more optimal.

Conclusion

There is an influence of practicum facilities on the learning outcomes of automotive electricity students of SMK N 4 Kerinci where the value of p Value = 0.000 with $\alpha = 0.05$ ($p < \alpha$). It is recommended for educators to optimise the learning process using practicum facilities to improve student learning outcomes in automotive electricity.

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Declaration

Author contribution

Ridho Febrianda as a researcher and data collector for the facility relationship. Dr. Eko Indrawan, S.T., M.Pd. is a provider of direction and methods in research; Zainal Abadi, S.Pd., M.Eng. Evaluating research methods and data analysis, Budi Syahri, S.Pd., M.Pd.T. evaluating Background of the Problem.

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Conflict interest

The author states that there was no conflict when conducting the research.

References

- Anggrianto, N. (2012). Hubungan Karakter Siswa Dengan Prestasi Belajar Siswa XI Program Keahlian Teknik Instalasi Tenaga Listrik (TITL) Di Smk Negeri 2 Yogyakarta.
- Eddy, R., Iche, A. liberty, & Pariyana. (2021). Populasi Sampel dan Variabel dalam penelitian kedokteran. https://www.google.co.id/books/edition/Populasi_sampel_variabel_dalam_penelitian/isyreaaaqbaj?hl=id&gbpv=1&dq=populasi+dan+sampel+penelitian&printsec=frontcover
- Hananto, T. (2009). Pengaruh Penggunaan Alat Praktik Terhadap Peningkatan Prestasi Belajar Kelistrikan Otomotif Siswa Kelas li Program Mesin Otomotif Smk Sakti Gemolong Tahun Ajaran 2008/2009.
- Huda. (2016). Pengaruh Kelengkapan Peralatan Praktik Bengkel Otomotif Terhadap Hasil Belajar Siswa Smk Pada Mata Pelajaran Pemeliharaan Mesin Kendaraan Ringan Kelas Xi Jurusan Teknik Kendaraan Ringan.
- Kurnillah, Z. K., Erika, R., & Hasan, M. (2021). Metode Penelitian Sosial (A. Rikki & M. Iqbal (eds.)). https://www.google.co.id/books/edition/Metode_Penelitian_Sosial/fCZAEAAAQBAJ?hl=id
- Pradono, J., Haspari, D., Sudibyo, S., & Budiarto, W. (2018). Panduan Manajemen Penelitian Kuantitatif (Trihono (ed.)). Lembaga Penerbit Badan Penelitian Dan Pengembangan Kesehatan (LPB). http://repository.bkpk.kemkes.go.id/3509/1/Buku_Panduan_Manajemen_Penelitian_Kuantitatif.pdf
- Ridwan. (2024). Analisis Kesulitan Belajar Praktik Kelistrikan Otomotif Siswa Jurusan Teknik Kendaraan Ringan SMK Latanro Enrekang.
- Saleh, M. Ialu, & Yanti, H. Iva. (2021). Epidemiologi K3. Deepublish. https://www.google.co.id/books/edition/Epidemiologi_K3/BI4mEAAAQBAJ?hl=id&gbpv=1&dq=sugiyono+sampel+30-500&pg=PA110&printsec=frontcover