



## The Feasibility Study of Light Vehicle Engineering Electrical Practice Facilities and Infrastructure at Vocational Education School

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### Abstrak

Kelengkapan dan kelayakan sarana prasarana dalam dunia pendidikan merupakan hal yang harus diperhatikan dan dipenuhi. Hal ini berdampak pada hasil belajar dan kemampuan siswa. Penelitian ini bertujuan untuk mengetahui kelayakan sarana dan prasarana pada bengkel praktik kelistrikan teknik kendaraan ringan di SMK Negeri 1 Padang. Penelitian ini menggunakan metode analisis deskriptif. Data penelitian diperoleh dari hasil wawancara, dokumentasi, dan observasi langsung di sekolah. Data sarana dan prasarana yang telah diperoleh kemudian dibandingkan dengan standar sarana dan prasarana yang tercantum dalam Peraturan Menteri Pendidikan Republik Indonesia nomor 40 tahun 2008 dan Badan Standar Nasional Pendidikan nomor 1049-P2 tahun 2010/2011. Hasil penelitian menunjukkan bahwa tingkat kelayakan sarana dan prasarana praktik kelistrikan teknik kendaraan ringan SMK Negeri 1 Padang sebesar 56,42% dan 53,32% yang termasuk dalam kategori layak. Sarana dan prasarana pembelajaran praktik kelistrikan yang ada masih dapat digunakan dan sekolah diharapkan dapat meningkatkan kualitasnya.

**Kata Kunci:** *Kelayakan, fasilitas, infrastruktur, praktik, sekolah pendidikan kejuruan*

### Abstract

*The completeness and feasibility of infrastructure in the world of education is something that must be considered and fulfilled. This has an impact on learning outcomes and students' abilities. This study aims to determine the feasibility of facilities and infrastructure in the light vehicle engineering electrical practice workshop at Padang 1 State Vocational Education School. This research uses descriptive analysis method. Research data obtained from interviews, documentation, and direct observation at school. The data on facilities and infrastructure that has been obtained is then compared with the standards of facilities and infrastructure listed in the Regulation of the Minister of Education of the Republic of Indonesia number 40 of 2008 and the National Education Standards Agency number 1049-P2 of 2010/2011. The results showed that the level of feasibility of the facilities and infrastructure for the electrical practice light vehicle engineering Padang 1 State Vocational Education School was 56.42% and 53.32% which were included in the feasible category. Existing electrical practice learning facilities and infrastructure can still be used and schools are expected to improve their quality.*

**Keywords:** *feasibility, facilities, infrastructure, practice, vocational education school*

## INTRODUCTION

Vocational education school is synonymous with many learning practicums that are in line with theory to deepen students' expertise. Vocational education school is a secondary level education unit tasked with developing students' skills in the fields of interest (Permen, 1990). Vocational education is also defined as special education in charge of preparing oneself to be ready to work in a company (Soeharto, 1988). Vocational Education School is an institution that forms student development skills according to their talents and directs students to further careers in the world of work (Hamalik, 1990).

Padang 1 State Vocational Education School has several expertise study programs, one of which is automotive engineering which has various expertise competencies. Each competency has a vision and mission to make students have talents and expertise in the fields they are interested in. In the Automotive Engineering study program there are light vehicle engineering competency competencies, one of which requires students to be skilled in automotive electricity. The automotive electricity subject has five basic competencies, namely maintaining batteries, repairing ignition systems, repairing starter and charging systems, repairing minor damage to electrical circuits, and maintaining air conditioning systems (Arikunto, 2010).

Facilities and infrastructure affect the learning process (Timor et al., 2020; Zagoto, Yarni & Dakhi, 2019). Complete facilities and infrastructure will create a quality and conducive student learning process so that learning objectives can be achieved. Facilities are learning equipment that can be moved, such as furniture, tools,

consumables, books, and other things used for learning (Dakhi et al., 2020; Kemendiknas, 2009). Infrastructure is all basic equipment that indirectly supports the implementation of learning, such as study rooms, practicum rooms, school principal/representative rooms, administrative rooms, teacher rooms, libraries, laboratories, workshops, fields, toilets and others (Dakhi et al., 2022).

Facility eligibility is the level of achievement of facilities that are directly used in the Light Vehicle Engineering expertise program in electrical practice subjects with a number of standards that have been set and must be met or owned by the department or school. For example the feasibility of furniture, media, tools and materials used for automotive electrical practices. Infrastructure feasibility is the feasibility of the area of the room that is used directly for automotive electrical practices. For example the feasibility of study rooms, practicum/workshop rooms, toilets and hand washing places.

Based on this explanation, it is necessary to carry out a feasibility study of electrical practice facilities and infrastructure in the Light Vehicle Engineering expertise program. This study aims to determine the level of feasibility of electrical practice facilities and infrastructure in the Light Vehicle Engineering skill program at Padang 1 State Vocational Education School. The feasibility level of these facilities and infrastructure refers to the Regulation of the Minister of National Education of the Republic of Indonesia number 40 of 2008 concerning standard facilities and infrastructure for Vocational Education Schools/Madrasah Aliyah Vocational Schools and the instrument for verifying Vocational Education Schools administering vocational

practice exams issued by the National Education Standards Agency.

**METHOD**

This research includes a descriptive research method which is research that is devoted to investigating situations, conditions, circumstances, or other things that have been mentioned and the results are presented in the form of a research report [5]. This research method aims to measure the feasibility of the electrical practice workshop which is carried out by looking at the facts and situation of the condition of facilities and infrastructure at the light vehicle engineering workshop, Padang 1 State Vocational Education School.

The results of the suitability of the research data were compared with the Regulation of the Minister of Education of the Republic of Indonesia No. 40 of 2008 concerning standard facilities and infrastructure for Vocational Education Schools/Madrasah Aliyah Vocational Schools and from the National Education Standards Agency No. 1049-P2 of 2010/2011 concerning Verification Instruments for Vocational Education Schools concerning the implementation of Vocational Practical Examinations in 2010/2011.

Data collection techniques were carried out through documentation, observation, and interviews at Padang 1 State Vocational Education School. Documentation is a technique that is used to check and find out data on facilities and infrastructure with investment data on

equipment, furniture, and all media that have been provided by the school as facilities and infrastructure in the light vehicle engineering electrical practice workshop. Observation is a direct observation technique about the condition of existing facilities and infrastructure in the light vehicle engineering electrical practice workshop. The interview is a question and answer with the head of the workshop and the light vehicle engineering electrical practice teacher.

**RESULTS AND DISCUSSION**

The research results were obtained from documentation data, observations, and interviews compared to the supporting facilities and infrastructure that must be owned by the Light Vehicle Engineering expertise program in electricity practice as written in the Regulation of the Minister of National Education number 40 of 2008 and the verification instrument for Vocational Education Schools administering practical exams vocational education issued by the National Education Standards Agency.

The data obtained and retrieved are facilities and infrastructure that are in good condition and can still be used. Data on electrical practice facilities and infrastructure consists of five (5) basic competencies, namely maintaining batteries, repairing ignition systems, repairing starter and charging systems, repairing minor damage to electrical circuits, and maintaining air conditioning systems. The research data are in Tables 1 and 2.

Table 1. Standard achievement of light vehicle engineering electrical practice facilities

Object of research	Facilities Quantity	Scores	Achievement Percentage (%)
Battery maintenance competency standards	29	48	60.41
Repairing ignition systems competency standard	33	58	56.89
Repairing starter and charging system competency standard	47	72	65.27
Repairing minor damage to the electrical circuit competency standard	17	30	56.66

Maintainance the air conditioning system	24	56	42.85
Total score	150	265	
Percentage average			56.42

Table 2. Standard achievement of light vehicle engineering electrical practice infrastructure

Object of research	Infrastructure Quantity	Scores	Achievement Percentage (%)
Battery maintenance competency standards	7	12	58.30
Repairing ignition systems competency standard	6	12	50.00
Repairing starter and charging system competency standard	6	12	50.00
Repairing minor damage to the electrical circuit competency standard	7	12	58.30
Maintenance the air conditioning system	6	12	50.00
Total score	32	60	
Percentage average			53.32

The value of the feasibility of achieving the standards for electrical practice facilities for the Light Vehicle Engineering Expertise Program, Padang 1 State Vocational Education School, which is translated according to the respective competency standards in the electricity subject. The results for the competency standard for maintaining the battery get a score of 29 out of 48 with a maximum score of 60.41%, which is categorized as feasible. Competency standards for repairing the ignition system get a score of 33 out of 58 with a maximum score of 56.89% which is categorized as feasible. Competency standards for repairing the starter and filling system obtain a score of 47 out of 72 with a maximum score of 65.27% which is categorized as feasible. The competency standard for repairing minor damage to electrical circuits obtains a score of 17 out of 30 with a maximum score of 56.66% which is categorized as feasible. The competency standard for maintaining the air conditioning system gets a score of 24 out of 56 with a maximum score of 42.85% which is categorized as inadequate. The average percentage of the achievement of electrical practice facilities in the Light Vehicle

Engineering expertise program is 56.42% in the feasible category.

The feasibility value of achieving infrastructure standards for electrical practice in the light vehicle engineering expertise program at Padang 1 State Vocational Education School which is described in accordance with respective competency standards in the electricity subject. The results for the competency standard for maintaining the battery get a score of 7 out of 12 with a maximum score of 58.30% which is categorized as feasible. Competency standards for repairing the ignition system get a score of 6 out of 12 with a maximum score of 50.00% which is categorized as inadequate. Competency standards for repairing the starter and filling system obtain a score of 6 out of 12 with a maximum score of 50.00% which is categorized as inadequate. The competency standard for repairing minor damage to electrical circuits obtains a score of 7 out of 12 with a maximum score of 58.30% which is categorized as feasible. The competency standard for maintaining the air conditioning system gets a score of 6 out of 12 with a maximum score with a percentage value of 50.00% which is categorized as inadequate. The average

percentage of the achievement of the light vehicle engineering expertise program's electrical infrastructure is 53.32% in the proper category.

The results of the analysis are in accordance with the documentation, observation, and interview data obtained regarding the feasibility of the facilities and infrastructure for the electrical practice of the Light Vehicle Engineering expertise program, so in the electricity learning process the existing facilities and infrastructure can still be used and schools are expected to improve their quality. The feasibility study of these facilities and infrastructure is carried out based on the needs that exist in the school by taking into account the basic competencies in each subject. These facilities and infrastructure have the goal that students can learn with adequate practice facilities so that the learning process can be implemented optimally and obtain satisfactory results. The feasibility study of facilities and infrastructure in this study has the aim of adjusting the feasibility of existing facilities and infrastructure in schools with the standards set by the government. Complete facilities and infrastructure will make the learning process run as expected so that students' knowledge and skills and expertise are more optimal because of adequate facilities and infrastructure.

## CONCLUSION

From the results and analysis of the overall data that has been described previously, it can be concluded that the feasibility level of the light vehicle engineering practice facility at Padang 1 Vocational Education School is categorized as feasible with an average percentage of 56.42% in terms of each competency standard. Means on competency standard of maintaining battery is 60.41%, facility on competency standard of repairing ignition system is 56.89%, facility on competency

standard of repairing charging system and starter is 65.27%, facility on competency standard of repairing light damage to electrical circuit is 56.66%, facility on the competency standard for maintaining the air conditioning system is 42.85%.

The feasibility level of the light vehicle engineering practice infrastructure at Padang 1 State Vocational Education School is categorized as feasible with an average percentage of 53.32% in terms of each competency standard. Infrastructure on competency standard of maintaining battery is 58.33%, infrastructure on competency standard of repairing ignition system is 50.00%, infrastructure on competency standard of repairing charging system and starter is 50.00%, infrastructure on competency standard of repairing light damage to electrical circuits is 58.33%, and infrastructure the competency standard for maintaining the air conditioning system is 50.00%.

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