NEEDS ANALYSIS
OPEN ENDED LEARNING MODEL IN SMK

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Abstract This study aims to determine (1) analysis of the needs of open ended learning models for students; (2) analysis of the needs of open ended learning models for educators; (3) analysis of the needs of open ended learning models for learning management; (4) analysis of the needs of open ended learning models for lesson plans; (5) analysis of the needs of the open ended learning model for the implementation of learning; (6) the need for an open ended learning model for learning evaluation; The research subjects involved class XI for 3 schools (consisting of 265 students) selected by purposive sampling technique. Data was collected through observation, tests, interviews, and documentation and then analyzed using descriptive statistical analysis of percentages and frequency distribution tables. The results of the data analysis show that: (1) the need for an open ended learning model for students is 65%; (2) the need for an open ended learning model for educators is 55%; (3) the need for an open ended learning model for learning management is 75.83; (4) the need for an open ended learning model for learning planning is 82.22%; (5) the need for an open ended learning model for the implementation of learning is 69.44%; (6) the need for an open ended learning model for learning evaluation is 77.88%.

Keywords: Needs analysis, learning model, open ended

A.INTRODUCTION

The challenges and opportunities of industry 4.0 encourage innovation and creation in vocational education, so the government needs to review the relevance between vocational education and work while still paying attention to the humanitarian aspect, namely humanizing humans themselves by achieving self-actualization, self-understanding, and optimal self-realization of students (Yahya, et al., 2018).

Problem-based automotive electrical learning requires higher-order thinking skills, this is reinforced that this metacognition-based learning method can

grow students' High Order Thinking Skills (HOTS) in solving problems (Purnamawati &; Saliruddin, 2017).

DUDI data at SMK Negeri 3 Makassar shows that 80% of alumni are already working (50% work according to their major's background, 15% work not according to their major's background and 15% are entrepreneurial), and 20% continue their studies (Public Relations of SMKN 3 Makassar, 2020). Students who work at DUDI mean that these students will be faced with the real problem, because the type of worker competence is very decisive in mapping work needs at DUDI (Yahya, et al., 2020). The competence of TKR expertise that is not optimal for students can be measured through their ability and vocational insight in repairing damages that occur in light vehicles, especially in the automotive electrical sector (Yahya, 2015). The use of job sheets in automotive research practices that are less effective results in students tending to depend on existing job sheets and are not motivated to be more creative (Yahya, 2014).

The results of observations for the last three consecutive years that have been randomly carried out on 30 TKR Expertise Competency students at State Vocational Schools throughout Makassar City who are assumed to have passed the subject of Light Vehicle Electrical Maintenance require competence with a close ended learning model, it turns out that only 10% are declared able to solve problems well, so there is a desire to develop an open ended automotive electrical learning model that can increase learning motivation and cognitive abilities of students (SMK se-Kota Makassar, 2020).

B.METHOD

This study is a percentage descriptive research. This research was conducted at SMK Negeri 3 Makassar located on Jl. Bonto Te'ne No. 6 Makassar, SMK Negeri 5 Makassar located on Jl. Sunu Makassar and SMK Negeri 10 Makassar located on Jl. Bonto Langkasa Makassar. The time for this research is approximately 1 (one) year, starting from January to December 2022. The population in this study is all students of the automotive study program totaling 261 students.

Tabel 3.1. Jumlah Siswa TKR Tahun Ajaran (TA) 2022/2023

No	Kelas	Jumlah Siswa
1	SMK Negeri 3 Makassar	255
2	SMK Negeri 5 Makassar	275
3	SMK Negeri 10 Makassar	270
	Jumlah	800

Sumber: Data Bagian Kurikulum SMK Negeri 3, 5 dan 10 Makassar

The research subjects were grade XI students of the Automotive Study Program for the 2022/2023 Academic Year (FY) totaling 30 students with purposive sampling techniques.

The data collection techniques carried out are 1) Observation, 2) Test, 3) Interview, 4) Questionnaire, 5) Documentation.

C. RESULTS AND DISCUSSION

1. Needs Analysis

Needs analysis using questionnaires distributed to respondents (students of SMK Negeri 3, 5 and 10 Makassar). After analysis according to the resulting data is presented in Figure diagram 4.1 as follows:
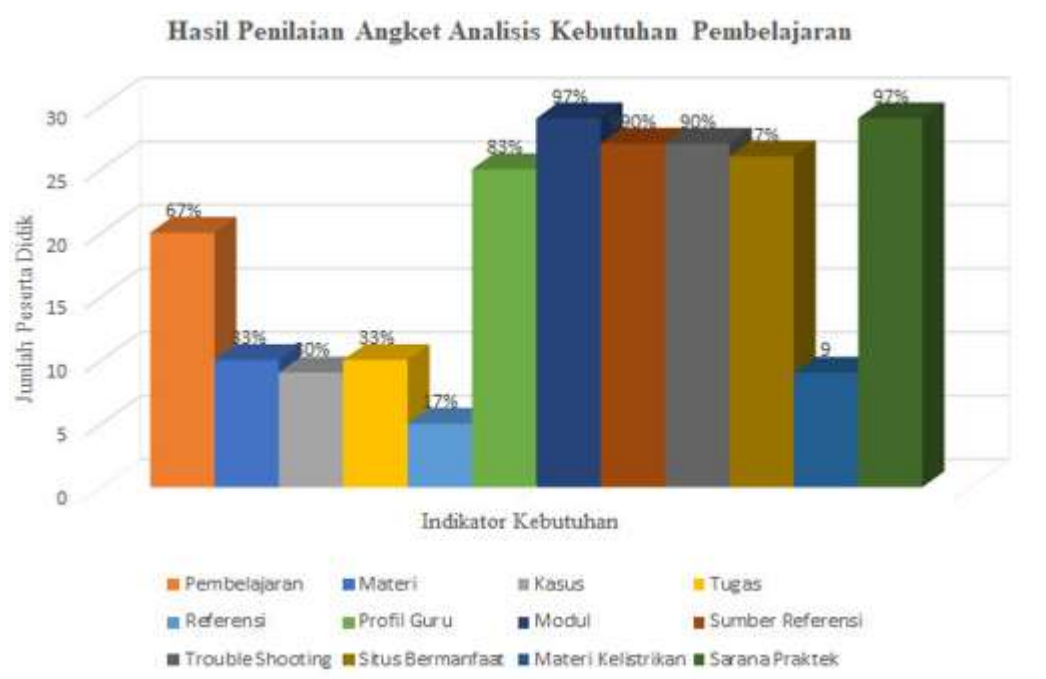

FIGURE 4.1 Needs Indicator

Based on the results of the questionnaire calculation, it can be concluded that all aspects offered in OEL learning are needed or needed by students. The results of this needs analysis are used as valuable information for the next stage of development. Thus, it can be ensured that all aspects as offered are provided at each phase of the learning model. After conducting a needs analysis and literature study, the next stage is to develop an existing OEL learning model in accordance with the results of the learning needs analysis (Figure 4.1).

a. Results of Automotive Electrical Learning Needs Analysis.

Students who were made subjects in this study consisted of 30 people. Based on the questionnaire given to students to find out the needs of students, answers are obtained as in Table 4.1.

Table 4.1. Results of the Initial Experimental Analysis Assessment of Automotive Electrical Learning

No.	Aspek	Rata-rata	Kriteria
1.	Analisis kebutuhan peserta didik dalam pembelajaran PKKR	63	Sedang
2.	Analisis kebutuhan pendidik dalam pembelajaran PKKR	55	Sedang
3.	Pengelolaan pembelajaran PKKR	75,83	Baik
	a. Perencanaan	82,22	Memuaskan
	b. Pelaksanaan	69,44	Cukup
	c. Evaluasi	77,78	Baik

b. The results of the analysis of student needs.

Analysis of student needs consists of indicators of educator time availability specifically to discuss each learning competency, availability of educator time for consultation, giving responses after each independent task, giving educator responses after each completion of doing questions, providing material by educators in the form of modules, power points or papers, independence of material provided by educators, adequacy of references, up-to-date references Provided. The interactivity of each learning topic between students and students, difficulty in discussing with students, statements of approval if OEL learning is available at school, educators provide independent assignments and questions through OEL learning, willingness to use OEL learning, obtained an average overall score of 63 in this case medium criteria. Based on the answers given, it can be seen that in general students feel that educators have given time, responded to what was done, provided enough material. However, most students feel that the references and learning resources provided are insufficient, updating learning resources is not adequate. Most students agree that educators provide independent assignments through repairing automotive electrical problems in electrical block panel learning media.

c. Results of educator needs analysis.

Educators who were the subjects of the study were 5 respondents as respondents to find out the initial needs of educators in the implementation of Automotive Electrical learning. Indicators of educator needs consist of always preparing and utilizing the syllabus as a reference in every lesson planning, always preparing lesson plans and providing material in the form of modules, availability of practice guides in the form of jobsheets, availability of learning resources and reading books and updating reading books, interesting packaged materials, use of automotive electrical learning media, availability of special time to discuss each learning competency, the availability of special time for consultation, giving responses after each independent task, adequate mastery of the material and the desire to improve the way of teaching.

Based on the data from the educator needs questionnaire, educators always prepare and utilize learning tools (such as: lesson plans, modules, jobsheets and media) in

every lesson planning. Educators in the learning process always discuss learning competencies, provide responses to the material and master the material. Regarding learning resources so far have not been sufficient and have not met the up-to-date reading content and educators are limited to the use of presentation files. The effectiveness of using the open ended method in the experimental class is higher than in the control class using the closed ended method. This finding is in line with the results of Jangali & Gaitonde's (2019) research which concluded that the open-ended method provides benefits, including encouraging students to have an independent perspective; encourage learners to think harder; encourage learners to develop their own experiments; make learning more challenging; and make learning more active. This is also in line with the research of Ichinco & Kelleher (2019) which concluded that the open method ended must focus on students who tend to be less in exploring themselves, because if students lack a lot in exploring themselves, the lower the ability of students to do problem solving; Vice versa, if students explore themselves more, the higher the ability of students to solve problems. Thus, the open ended method has advantages over the close ended method in terms of achieving learning outcomes of the Light Vehicle Engineering expertise package. So it can be said that the open ended method is effective in learning.

Another finding from this study is that in general learners actively follow learning steps that are in accordance with the syntax of the open ended method. In addition, there has been an increase in discussion activities both individually and in groups, collection of assignments, and the use of varied learning resources. So that the application of the open ended method can increase the activeness of students in learning the Light Vehicle Engineering expertise package. This is in line with the results of research by Wang, et al. (2020) which concluded that OEL learning provides challenging learning opportunities; help automate and accelerate progress in learning; generate and solve its own challenges; enable solutions to switch goals due to optimal challenges; demonstrate creative potential; helps to explain the full potential; measure how big the new challenge is meaningful; enabling the system to potentially create and solve endlessly exciting challenges; efficient to determine when to switch goals from one problem to another; helps with better search of open issues; allow for more definitive demonstrations; more flexibility to juxtapose environmental challenges; demonstrate deferred open innovation; and generate diverse behaviors that solve a variety of environmental challenges, many of which cannot be solved through other means.

According to the constructivist view, learners' goals will be achieved, if students actively build their knowledge in learning. Therefore, effectiveness is also influenced by student activities in learning. This is in line with the opinion of Kasaei, et al., (2019) which states that students learn material better, and can remember material concepts longer. There is a tendency that learners are familiar with tasks, answers and criteria that have been set. Their learning strategies tend to find the right answers. When the problem of the open ended method is given to

students in the vocational field they search for information more deeply, learning is more focused but the tendency of students emphasizes more on a single solution method, more involving the role of the instructor in providing guidance with clear procedures and must be presented sequentially and make it easier for students to achieve competence.

The open ended learning method utilizes problems, this is in line with Riadi (2019) that the open ended learning method utilizes problems that are formulated in such a way, so as to provide opportunities for various answers to arise with various strategies or their respective ways. Open ended learning methods develop creative, this is in line with Komeini (2018) that open ended learning methods help develop creative activities and the mindset of students through simultaneous problem solving. Learning with this open-ended approach can train and foster originality of ideas, creativity, reason, cognitive, critical, openness and socialization. Open ended learning methods help independence, this is in line with Baldassarre, et al. (2018) that the open ended approach allows humans and robots to independently acquire an increasingly large list of skills, which can later enable them to generate appropriate actions to achieve the desired effect in the environment. The open ended approach encourages endless learning; enable contingency-based open-ended approaches to occur; encourage the learning of motor skills used to achieve goals and internal representation of action outcomes. The open ended method that is screened has several characteristics and advantages, namely: 1) emphasizes real problems, 2) emphasizes independence, 3) emphasizes the process of finding solutions, 4) emphasizes more on student exploration, 5) more challenging and more meaningful, 6) the learning process is open so that students are more enthusiastic, 7) the learning concept is more effective because it is very contextual encouraging active involvement of students to find relationships between problems, 8) has the potential to develop student understanding, 9) encourage student involvement in practice, 10) encourage student involvement in designing discovery, 11) generate curiosity, 12) practice problem-solving skills, and 13) become a meaningful experience and understanding. The open ended approach provides opportunities for students to be able to solve a problem (Komeini, et al., 2021). This is in line with Edson's (2017) research that the open ended approach provides opportunities for students to be able to solve a problem; The open ended approach can control the level of students' ability to solve a problem; The open ended approach provides opportunities for new problems to arise. So that the open ended approach provides challenges to students to be able to solve a problem so that it can improve students' ability to solve a problem; The open ended approach can help teachers in designing curriculum materials that can improve students' ability to solve a problem.

An open-ended approach can identify students' cognitive skills. This is in line with Kinnebrew's (2014) research that the open ended approach has several benefits including being able to identify students' cognitive skills, the use of students' metacognitive strategies during learning and student problem-solving

activities in open learning environments; be able to further interpret student learning behavior by mapping it to metacognitive strategies; and help students to develop and implement behaviors in a more effective way.

The open ended approach is close to the real conditions that exist in the field. This is in line with Askari & Kamarei's (2017) research that the open-ended approach approaches real conditions in the field. The open ended approach is very capable in measuring the level of knowledge of students in solving a problem. The open ended approach is also appropriate, very easy to use and accurate and has a high level of precision in measuring the level of students' ability to solve a problem.

D.CONCLUSION

Based on the results of research and discussion, it can be concluded that the open-ended learning model is needed by students, educators and in learning management, especially automotive electrical learning in vocational schools.

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