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# FEASIBILITY TEST OF ICARE-BASED STUDENT ACTIVITY SHEETS (LKPD) ON NEWTON'S LAW MATERIAL

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***Abstract***

This study aims to find out how the feasibility of ICARE-based LKPD and teacher and student responses to ICARE-based LKPD developed on Newton's Law material. This study used the Research and Development (R&D) method with a 4-D model modified by Thiagarajan et al (1974) by limiting the procedure to 3D due to limited research time. The results of the study show that in developing ICARE-based worksheets, knowledge of ICARE understanding and development models is required, which in this study uses 3D models.

The feasibility of Student Worksheets (LKPD) after going through the validation and revision stages by media experts, material experts, teachers and students in this study was 82.65% which was included in the very feasible category and the response of teachers and students to ICARE-based physics LKPD in In this study, a percentage of 85.05% was obtained, where this value was included in the very feasible category so that it was proven that the developed ICARE-based Student Worksheets (LKPD) had met the eligibility to be used in physics learning on Newton's Law material in class X. Based on the results From this it can be concluded that the ICARE-based LKPD has met the eligibility to be used in learning Newton's Law material for class X high school students.

**Keywords**: Feasibility test, Student Activity Sheets, I-CARE, Newton's Laws

## *INTRODUCTION*

The world of education is continually advancing, with various innovations being implemented to enhance the quality of education. To improve the quality of education, it requires various breakthroughs in curriculum development, innovative teaching methods, and the provision of educational facilities and infrastructure.

To enchance the learning process, teachers are expected to create more innovative lessons that encourage students to learn optimally, both through independent learning and in-class instruction. Education plays a crucial role in enhancing human resources. For individuals, education serves as a means and a facility that facilitates, directs, develops, and guides them toward a better life, not only for themselves but also for other people. Physics is one of the branches of natural science that encompasses the study of the fundamental properties of matter

and energy, as well as the interactions between matter and energy. As a part of the natural sciences, physics is fundamentally viewed as a product, process, and scientific attitude. Physics is considered a product because it consists of a collection of knowledge that is gathered, collected, and organized by scientists (Sunardi, 2016).

The learning process is a system that cannot be separated from its interacting components. Learning tools should be able to make students more active so that the learning process can proceed well and yield good results. One of the instructional tools used as a means of communication and interaction between teachers and students in the learning process is the Student Activity Sheet (LKPD), which is used to support the presentation of teaching materials.

The preliminary study conducted by the researcher at SMK Cerdas Bangsa with 29 students yielded the following data, 100% (29 students) stated that teachers always assign tasks, both in groups and individually and additionally, 97.5% (28 students) prefer using media over conventional learning methods, while 2.5% (1 student) do not prefer it.

Based on the interviews conducted by the researcher with the physics teachers at SMK Cerdas Bangsa Medan, it was found that in the past year, LKPD (Student Activity Sheets) were no longer used as teaching materials. This was due to time constraints during the learning process.

The advantages of having activity sheets for teachers are that it makes it easier for them to conduct lessons. Additionally, for students, it allows them to learn independently to understand and complete written tasks. The benefits of preparing student activity sheets include increasing student engagement and activity in learning and transforming the learning environment from teacher-centered to student-centered. Students require appropriate activity sheets (LKPD) to follow the applied teaching model, ensuring that the learning process runs smoothly. Activity sheets used in the learning process should encourage students to experiment in the field.

Therefore, in the preparation of student activity sheets (LKPD), it is essential to create a learning process in which students actively participate in discovery, aligning with the 2013 curriculum's emphasis on active student involvement in learning. To achieve this, the use of an appropriate teaching model is necessary to make it easier for students to understand the concepts presented by the teacher. One of the models that can be employed is the ICARE-based learning model (Introduction, Connection, Application, Reflection, and Extension) based on strategies that align with the learning process. This approach aims to ensure that the intended learning

objectives are met, and students can enhance their self-improvement through the learning process.

According to (Juru Bahasa, 2018), the development of Student Activity Sheets (LKS) can be effectively integrated using a relevant approach, specifically, the appropriate approach for developing teaching materials is the development of ICARE-based modules. The ICARE approach comprises five aspects, namely Introduction, Connection, Application, Reflection, and Extension. All of these aspects are highly effective for developing relevant LKPD and can serve as a guide in the teaching and learning process.

In the research by Sinuraya et al. (2019), the structure used in the ICARE learning model is characterized by active, creative, and enjoyable (joyful learning) features. ICARE is a learning model that connects the material and application taught to students, enabling them to delve deeper into the subject matter. It involves the stages of Introduction, Connection, Application, Reflection, and Evaluation.

Based on the description provided above, the research questions in this study are as follows 1) What is the feasibility of ICARE-based Student Activity Sheets (LKPD) on the topic of Newton's Laws and, 2) How do teachers and students respond to the ICARE-based LKPD developed for the topic of Newton's Laws.

## RESEARCH METHODS

The research method used is Research and Development with the 4-D model, but it is limited to 3D, namely define, design, and develop.

The subjects of this research are 10th-grade students, consisting of 29 students at SMK Cerdas Bangsa Medan. The data collection techniques used in the research are questionnaires and interviews. Questionnaires are used during the feasibility test and product testing.

The feasibility test is conducted by media and subject matter experts, while product testing is done by providing questionnaires to the students. Interviews are used to obtain preliminary research and the data obtained is used as input for the creation of Student Activity Sheets (LKPD). Interviews will be conducted with one of the physics teachers at SMK Cerdas Bangsa Medan.

## RESULTS AND DISCUSSION

The results of this research consist of validation questionnaires that have been assessed by subject matter experts and media experts, as well as questionnaires regarding the responses from

both teachers and students during the attractiveness test. Based on the conducted research, the obtained results are as follows.

The validation by subject matter experts consists of two assessment aspects: content feasibility and content aspect. The assessment results conducted by subject matter experts indicate a percentage score of 93.75% for content feasibility and 81.25% for content aspect. When the average score for each aspect assessed by the subject matter experts is calculated, the assessment result for the content in the Student Activity Sheets (LKPD) is 87.50%, which falls into the category of "very feasible." The assessment for each aspect by the subject matter experts can be seen in the figure below.

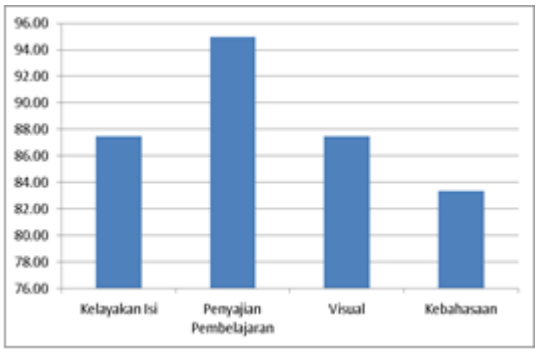


Image 1. Percentage of Feasibility Level Assessment of Student Activity Sheets (LKPD) by Subject Matter Experts.

The aspects included in the media validation questionnaire consist of content feasibility, presentation of the Student Activity Sheets (LKPD), graphical elements, and language.

Based on the assessment conducted by media experts, the evaluation results are as follows 87.5% for content feasibility, 95% for the presentation of Student Activity Sheets (LKPD), 87.5% for graphical elements and 83.33% for language.

If all the aspects are averaged, the media assessment for the Student Activity Sheets (LKPD) is 83.33%, which falls into the category of "very feasible." The aspects of presentation and content feasibility of ICARE-based Student Activity Sheets (LKPD) themselves meet the criteria of "very feasible." This aligns with previous research (Triani et al., 2018 and Sinuraya et al., 2020) that suggests that ICARE-based learning, coupled with practical activities, can enhance students' learning outcomes. The assessment for each aspect by media experts can be seen in the figure below:

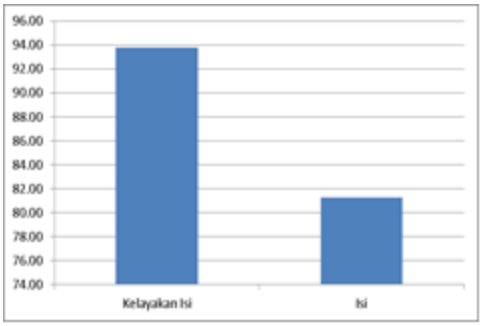


Image 2. Percentage of Feasibility Level Assessment of Student Activity Sheets (LKPD) by Media Experts.

Based on the assessment by experts, it can be concluded that the Student Activity Sheets (LKPD) can be used in the learning process. Field testing was conducted with teachers and students at SMK Cerdas Bangsa Medan. The results of the field testing were used to evaluate the attractiveness of the LKPD.

The questionnaire for teachers' responses to the Student Activity Sheets (LKPD) consists of five aspects: content coverage, material presentation, language, the impact on learning, and LKPD design. These aspects are used to assess how teachers perceive and evaluate the LKPD in these various dimensions.

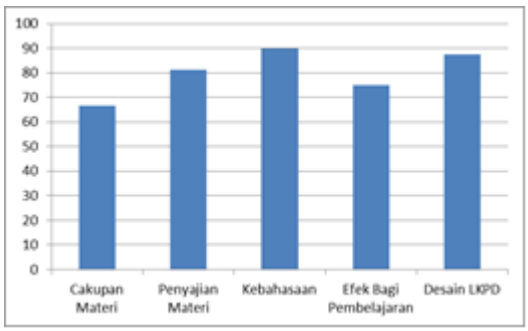


Image 3. Percentage of LKPD Interest Level Results by Teachers.

The aspect of content coverage received a percentage of 66.67%, which falls into the category of "feasible." The aspect of material presentation received a percentage of 81.25%, which falls into the category of "very feasible." Additionally, the language aspect received a percentage of 90%, which also falls into the category of "very feasible." These results indicate that the Student Activity Sheets (LKPD) are generally well-received in terms of content coverage, material presentation, and language.

For the aspect of the impact on learning, a percentage of 75% was obtained, categorizing it as "feasible." Regarding the design aspect, a percentage of 87.5% was

obtained, placing it in the category of "very feasible." Thus, the overall feasibility of the ICARE-based Student Activity Sheets (LKPD) on the topic of Newton's Laws, as assessed by subject area teachers, is 80%, falling into the "feasible" category.

The student response questionnaire consists of 13 items that encompass aspects related to attitude, language, and graphics. These questions are designed to gauge the students' perceptions and feedback on the Student Activity Sheets (LKPD) in terms of these specific dimensions.

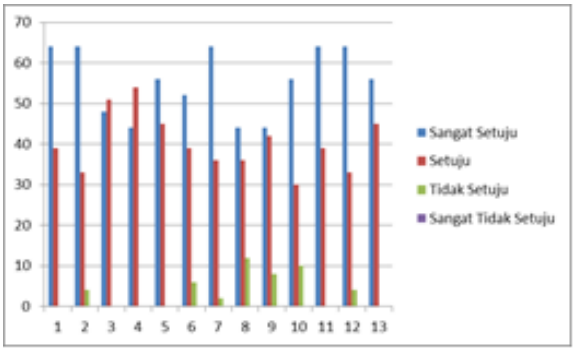


Image 4. Percentage of LKPD Interest Level Results by Students

Overall, the average student response to learning using ICARE-based Student Activity Sheets (LKPD) is 85.38%, indicating that it is considered very attractive by the students. This suggests that the LKPD is engaging and well-received by the students in their learning process.

## CONCLUSION

The evaluation results given to content experts and media experts include the suitability of ICARE-based teaching materials for the subject of Newton's Laws that have been developed. The suitability of the teaching materials (LKPD) based on their content is 87.5%, which falls into the "very suitable" category. The suitability of the teaching materials based on their media is 83.33%, also considered "very suitable." Finally, when evaluated by subject area teachers, the suitability of the teaching materials is 80%, placing them in the "suitable" category.

The data analysis from the student questionnaire, aimed at determining the attractiveness of the teaching materials (LKPD), shows a percentage of 85.38%, which categorizes the instructional video used as "very attractive."

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