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DEVELOPMENT OF INQUIRY-BASED STUDENT WORK SHEET IN SCIENCE CLASS V

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Abstract

This research is motivated by the unavailability of inquiry-based worksheets in science subjects. The teaching materials used only use theme books circulated by the Ministry of Education and Culture so teaching and learning activities in the classroom still need to be improved in variety. LKPD is important because it makes it easier for educators to carry out learning, for students to study independently and in groups, and to carry out written task. Inquiry helps students learn to make direct discoveries, be able to think critically, and be scientific. Based on the research results, material validation is 87% with the criteria "Very Eligible". The media validation results are 97% with the criteria of "Very Eligible". The results of the validation of linguists are 92% with the "Very Eligible" criteria. The small group test yielded an average score of 83% with the criteria "Very Interesting". Field trials obtained an average score of 86% with the criteria "Very Interesting". The results of the teacher's response obtained an average result of 85% with the criteria "Very Interesting". Inquiry-Based Science LKPD Products for Class V Science Subjects can be used as additional teaching materials by educators in a more varied learning process, can be distributed to class V students.

Keywords: Inquiry, IPA LKPD, Research & Development

PENGEMBANGAN LEMBAR KERJA SISWA BERBASIS INKUIRI DI KELAS V IPA

Abstrak

Penelitian ini dilatarbelakangi oleh belum tersedianya LKPD berbasis inkuiri pada mata pelajaran IPA. Bahan ajar yang digunakan hanya dengan menggunakan buku tema yang diedarkan oleh Kementerian Pendidikan dan Kebudayaan, sehingga dalam kegiatan belajar mengajar di kelas dirasa masih kurang bervariasi. LKPD penting digunakan karena memudahkan pendidik dalam melaksanakan pembelajaran, bagi peserta didik akan belajar mandiri dan kelompok serta menjalankan suatu tugas tertulis. Inkuiri membantu peserta didik belajar untuk melakukan penemuan langsung, mampu berpikir kritis, dan bersikap ilmiah. Berdasarkan hasil penelitian diperoleh validasi materi adalah 87% dengan kriteria “Sangat Layak”. Hasil validasi media adalah 97% dengan kriteria “Sangat Layak”. Hasil validasi ahli bahasa adalah 92% dengan kriteria “Sangat Layak” . Uji kelompok kecil menghasilkan nilai rata-rata 83% dengan kriteria ”Sangat Menarik”. Uji coba lapangan memperoleh nilai rata-rata 86% dengan kriteria “Sangat Menarik”. Hasil respon pendidik diperoleh hasil rata-rata 85% dengan kriteria “Sangat Menarik”. Produk LKPD IPA Berbasis Inkuiri Mata Pelajaran IPA Kelas V dapat dimanfaatkan sebagai bahan ajar tambahan oleh pendidik dalam proses pembelajaran lebih bervariasi, dapat didistribusikan kepada peserta didik kelas V.

Kata kunci: Inkuiri, LKPD IPA, Penelitian & Pengembangan

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INTRODUCTION

Education is a process that includes three aspects: individual, social, or national society from the individual itself, and all contents of reality, both physical and mental, play a role in determining the nature, destiny, and form of humans and society (Arafah et al., 2020). In the process education is inseparable from teaching and learning activities, learning activities are related to the use of teaching materials in class. Teaching materials are very influential in learning.

Teaching materials are all forms used in teaching and learning activities, Majid (in Kosasih, 2020: 1). One of the materials or learning resources used in the 2013 curriculum is Student Worksheets (LKPD). Student Worksheets are one of the learning materials that can be created by educators who act as facilitators in teaching and learning activities. The advantage of using LKPD is that it makes it easier for educators to carry out learning, for students to learn independently, and to understand and carry out a written assignment (Servitri & Trisnawaty, 2018).

In addition to LKPD, learning methods are necessary, requiring educators always to be ready to develop themselves by continuously improving their abilities and knowledge by always covering changes and developments in the world of education, including in developing learning methods and approaches. A suitable learning method or approach to be applied to SD/MI children is inquiry. Regarding this matter, it is by the book written by E. Mulyasa in (Yulkifli et al., 2019) namely that science education is directed to inquiry (discovery) and act so that it can help students gain a deeper understanding of the natural surroundings. Inquiry prepares students to conduct their own experiments extensively to see what is happening, want to do something, ask questions, find answers for themselves, connect one discovery with another, and compare what other students have found.

Science learning in elementary schools not only teaches mastery of facts, concepts, and principles about nature but also teaches problem-solving methods, trains critical thinking skills and concludes, trains to be objective, cooperate, and respect the opinions of others. Therefore, science learning in SD/MI emphasizes providing direct experience based on reality in the school environment through inquiry activities to develop process skills and a scientific attitude.

However, the facts in the field based on interviews and simple analysis of the learning process of students show that the current learning is different from the wishes of the applicable curriculum so educators still need to be able to develop students actively. Therefore, it is necessary to develop active learning tools for students. The teaching staff in class V-c, namely Mrs. Yuli Astina, S.Pd with a total of 26 students, learning activities at SD Negeri 2 Gedong Air Bandar Lampung use teaching materials that have been provided by the school, namely Educator Books, Student Books, and The Buppena book is a source of material used by educators which contains a brief description of the material and questions supporting the material. Educators have never developed their LKPD and there are no worksheets for students based on discovery (inquiry). The application of inquiry-based worksheets has yet to be developed in schools, so students have not been fully trained in direct discovery. Especially in science learning, teaching and learning activities in class, it is felt that more variety is needed (Rahman et al., 2019).

Based on the problems above, the researcher is interested in conveying the idea of conducting research and developing teaching materials using inquiry-based methods in science subjects. Because there are no worksheets for students to carry out inquiries (discoveries) at the school, educators have also never developed worksheets based on a particular method or approach. Applying the inquiry approach presented in a LKPD on science learning at SD Negeri 2 Gedong Air Bandar Lampung, it can help the learning process be more interesting and varied. This idea was realized in the form of research with the title "Development of Inquiry-Based Student Worksheets (LKPD) in Science Subject Class V SD Negeri 2 Gedong Air Bandar Lampung Academic Year 2021/2022."

The purposes of this study were 1) to produce LKPDs whose validity had been tested by subject matter expert lecturers, media experts, and linguists, then small group tests and field tests 2) to determine the feasibility of inquiry-based science LKPDs which were known from the responses of class V students and educators of the developed LKPD.

METHODS

This type of development research develops inquiry-based worksheets for science subjects in fifth-grade elementary school even semester (Rabiah, 2018). The research model used in developing this LKPD is the ADDIE model, one of the systematic learning design models. Romiszowski (in I Made Tegeh, et al., 2015: 209) states that the stages of development research in the ADDIE model consist of five steps, namely Analysis (analyze), Design (design), Development (development), Implementation (implementation), and Evaluation (evaluation). The stages of this model are divided into (five), namely 1) stage I stage of analysis (Analyze). In the analysis stage the activities carried out include (1) analyzing the competencies that students must master; in real terms in this textbook is realized by determining Core Competencies, Basic Competencies, and Competency Achievement Indicators; (2) analyzing the characteristics of students about knowledge, attitudes, and skills that students already have, and (3) analyzing relevant material to achieve the competencies desired by students. This chapter evaluates the analysis results independently and further evaluated for better results.

2) stage II The second stage of the ADDIE model is the (design) or planning stage. At this stage, the LKPD was designed, which would be developed according to the results of the previous analysis. In this stage, the structure of the teaching materials and content framework of the LKPD are designed. At this stage, the researcher also compiled instruments that would be used to assess the developed LKPD. The instrument was prepared by taking into account the aspects of the LKPD assessment, namely the aspects of material feasibility, language feasibility, and graphic feasibility. The tools are arranged as LKPD scorecards and response questionnaires. In addition, the instruments that have been prepared will be validated to obtain a valid assessment.

3) stage III The development stage is the product realization stage. The development of LKPD is carried out according to the design. After that, the LKPD will be validated by expert lecturers. The validator uses instruments prepared in the previous stage in the validation process. Validation was carried out to assess content and construct validity. The validator is asked to provide an assessment of the LKPD developed based on the eligibility aspects of the LKPD and provide suggestions and comments related to the contents of the LKPD which will later be used as a guideline for revising and perfecting the LKPD. Validation was carried out until, finally the LKPD was recognized as feasible to be implemented in learning activities. At this stage, the researcher also analyzed the results of the LKPD assessment obtained from the validator. This is done to get a valid LKPD value.

4) stage IV Implementation (Implementation) At this stage, the development results are applied in learning activities. This product trial aims to obtain information about the developed LKPD. The application was conducted to determine the attractiveness of the inquiry-based LKPD for science subjects in class V semester 2. Product trials were carried out in 2 ways: in small groups and field trials or large group trials. Application to small groups was carried out on 10 students to find out how students' responses could provide an assessment of the attractiveness of the developed LKPD.

Field trials were applied to 26 students, which was the final stage that had to be carried out. At this stage, the researcher also distributed response questionnaires to educators and students containing statement items about using worksheets in learning. This is done to obtain data on the practical value of using LKPD. In addition, educators and students were also asked to provide comments as guidelines for the second revision according to the responses of educators and students. After distributing the questionnaire,

the researcher conducted data analysis. The analysis was based on the results of a response questionnaire. This analysis was conducted to determine the practical value of the developed LKPD.

5) stage V Evaluation Stage Based on the implementation stage, the inquiry-based IPA LKPD products must be evaluated. At the evaluation stage, a final revision of the LKPD product was carried out based on suggestions and input from each expert lecturer who acted as a validator and educators and students who acted as research subjects during the implementation stage.

The subjects of this study consisted of 3 validators (linguists, media experts, and material experts), students in class V-c SD Negeri 2 Gedong Air, Bandar Lampung, with a total of 26 students, 18 female students and 8 male students. men, and teacher for class V-c Mrs. Yuli Astina, S.Pd. Meanwhile, the object of this study is the Inquiry-Based Worksheet for Science Subjects on Changes in the Form of Objects, in Semester 2 of the 2021/2022 academic year.

Data collection techniques and instruments in this study using observations obtained were data such as the number of students in class V-c, interview sheets conducted before and after the study, questionnaires consisting of material expert validator test questionnaires, media and linguists to determine feasibility from the developed science LKPD as well as student and educator questionnaires used to find out responses to the developed inquiry-based science LKPD, and finally documentation in the form of photographs when the research was carried out.

The data analysis technique used in this study uses qualitative data analysis techniques by describing all opinions and suggestions obtained from the questionnaire sheet at the product trial stage. And quantitative data analysis techniques with average calculations. The results of this analysis are used to determine the feasibility level of the development product in the form of inquiry-based science worksheets based on quantitative data obtained from material expert validation questionnaire data, media expert validation, linguist validation, educator response questionnaires and student response questionnaires.

FINDINGS AND DISCUSSION

The final product of this research is an inquiry-based worksheet on science subjects in class V at SD Negeri 2 Gedong Air Bandar Lampung. The development of inquiry-based worksheets was tested by Dr. Joko Sutrisno AB, M.Pd. as a material expert, and obtained a total average percentage of 87%. Furthermore, the validation results by media expert Mr. Ambyah Harjanto, M.Pd obtained an average percentage of 97%, and validation by linguists by Dr. Andri Wicaksono, M.Pd obtained an average percentage of 92%. From the overall average percentage obtained, the developed inquiry-based IPA LKPD obtains the interpretation criteria of "Very Eligible" and can be tested in the field. After getting the assessment results from each validator, namely material, media, and language experts, a comparison graph of the assessment will be obtained. The comparison can be seen in the following graph:

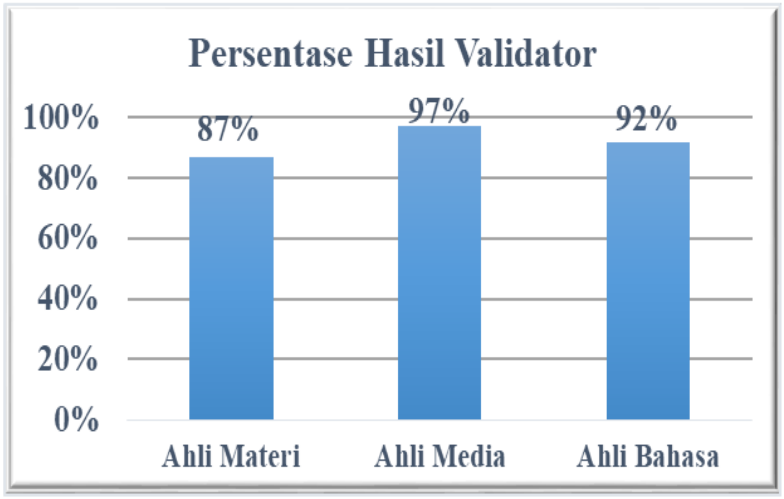

Figure 1. Graph of Assessment Results of Material Expert Validators, Media Experts and Language Experts

Then the small group test with students' responses to the Science Worksheet using the inquiry approach yielded an average value of 83% with the interpretation criterion achieved "Very Interesting". Large-scale trials (fields) with student responses to inquiry-based science worksheets obtained an average score of 86% with the interpretation criterion of "Very Interesting". After getting the results of the small group product test and the field test, a comparative assessment chart will be obtained. And the comparison can be seen from the following graphic image:

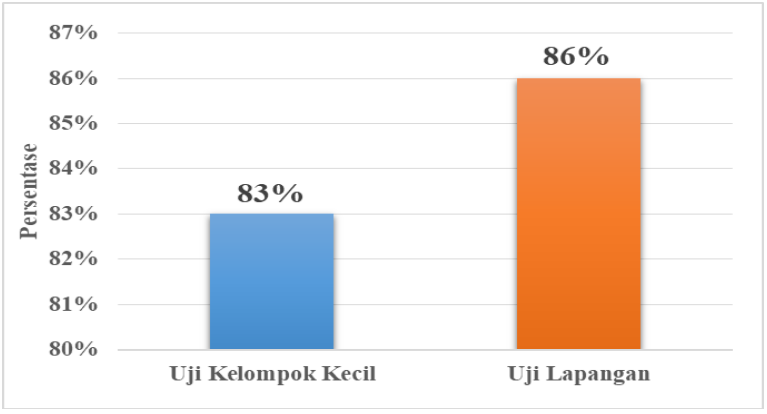

Figure 2. Graph of Comparison of Product Trial Results

The test results of educators' responses to inquiry-based science worksheets obtained an average result of 85% with the achieved interpretation criterion of "Very Interesting". Inquiry-based science worksheets developed by researchers have interesting criteria used as teaching materials that can help the learning process be more varied in the second semester of inquiry-based science material for class V SD/MI.

After doing a trial run. The inquiry-based science LKPD product developed, based on the results of student responses in small group tests and large group tests as well as the results of educator responses, obtained attractiveness criteria that were high enough so that no re-testing was carried out and seen from the assessment comparison chart. The comparison can be seen from Figure 3 below:

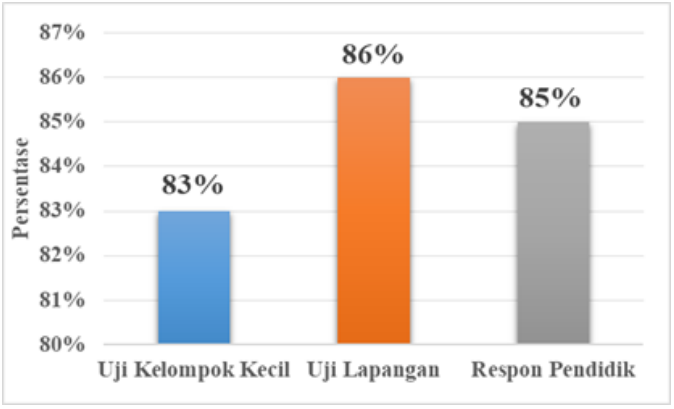

Figure 3. Graph Comparison of the Results of Small Group Trials, Field Tests and Educator Responses

Inquiry-based science worksheets can be used as an additional teaching material for students at SD Negeri 2 Gedong Air Bandar Lampung in the learning process to make it more varied.

CONCLUSION

The developed LKPD has met the validity requirements. LKPD has good qualifications based on the tests of material experts, media experts, and language experts. Then LKPD also has very attractive qualifications based on the results of small-group trials and field tests.

The suggestions given regarding developing inquiry-based science worksheets for science are as follows: students can apply the lessons learned from conducting inquiry activities in everyday life. For educators, inquiry-based science worksheets can be used as additional teaching materials in a more varied learning process.

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