



Development of higher order thinking skills based accounting E-LKPD at SMK Negeri 5 Palembang

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ABSTRACT

This research is a research and development (R&D) HOTS-based accounting E-LKPD teaching material. This research uses the ADDIE research model which has five stages, namely analysis, design, development, implementation, and evaluation. The results showed that the development of the accounting E-LKPD was declared efficient according to the results of media, material and language experts with an average of 84.29%. In terms of practicality, the one-to-one test averaged 89.91%, the criteria were very valid, and in the Small Group test, with an average result of 93.06%, the criteria were very valid. The average result is 73.33% good criteria and the post-test with an average result of 86.13% is very good criteria. So that there was an increase of 12.8% in the learning outcomes of class X AKL 2 SMK Negeri 5 Palembang. Effective when conducting research by obtaining an average observation of 88.84% very active criterion.

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INTRODUCTION

The level of education is a significant factor influencing the human resource development (HR) process. Education is an embodiment of human culture that is dynamic and full of development (Pratiwi et al., 2019). In the field of education, professional and competent human resources are needed who are dedicated to meeting the educational needs of the wider community. Based on data from the Program for International Student Assessment (PISA) study in 2018 with participants from 79 countries, Indonesia was ranked 10th on the measurement criteria for utilizing knowledge and abilities in science, mathematics, and reading (McComas, 2014).

To improve the quality of education, one of the most important tasks is to improve the educational process (Lestari et al., 2022). According to the director of the Center for Educational Development (Puspendik), the primary reason for Indonesia's education system's poor performance is that the nation's educational system does not encourage and stimulate students to analyze problems with logic at a higher level (Kementerian Pendidikan dan Kebudayaan, 2018). The availability of textbooks that are out of proportion to the number of pupils, the narrative character of learning, and the types of questions that have never existed before are the driving forces behind this study.

The role of the teacher in learning as a motivator for students to be better at improving the quality standards of education in Indonesia (Chairunnisa & Sukardi, 2022). If the students involved in the teaching and learning process have high motivation, then the process will be successful (Arianti, 2019). Teachers as educators also need to provide enthusiasm, motivation and one of the benchmarks for whether learning is successful or not is to evaluate and then proceed with an assessment. Discover how one's conduct changes in response to a certain situation as a result of one's behavior being repeated in that setting (Januardi & Gustiana, 2018).

Efforts to improve students' ability to think at a high level in the stages of learning activities need teaching materials (Khumaizah & Susilowibowo, 2019). An important part of the HOTS way of thinking is analysis (Vinasari et al., 2022). The need to produce something innovative and useful. According to (Adawiyah, 2022) Higher Order Thinking Skills (HOTS) is a process that involves high-level and creative thinking. The questions that were applied during this evaluation were Higher Order Thinking Skills (HOTS) so that students' reasoning or ways of thinking were more at a higher level. HOTS is a tool for critically analyzing things, formulating hypotheses and proposing solutions, observing things creatively, and constantly identifying positive and negative aspects of things (Simanjuntak, 2019).

A key component of HOTS is the ability to critically and creatively address problems that have been encountered using analysis and synthesis procedures. According to (Vinasari et al., 2022) an important part of the HOTS way of thinking is Assessment analysis. According to (Adawiyah, 2022, p. 15) Higher Order Thinking Skills (HOTS) is a process that involves high-level and creative thinking. HOTS is usually used to measure competence in the field of analyzing C4, evaluating C5, and creating C6. Efforts to improve critical thinking patterns in students' thinking are needed as teaching materials, one of which is LKPD.

A synopsis of the material is provided in the textbook LKPD, assignment instructions and assessment questions. Meanwhile, according to (Prastowo, 2015) LKPD is a special teaching material consisting of sheets of paper with material, and assignments for teaching that must be carried out by the teacher. In line with that (Zulliyandri, 2022) LKPD is a learning management system that emphasizes class activities which include material, summaries, and instructions used by instructors to make learning more comfortable. Student worksheets are project sheets that must be carried out so that students can understand the material given by the teacher and imparts knowledge and wisdom, including project problem solving and problem solving through experience. This student worksheet is a teaching material whose function is to minimize the role of the teacher but more to motivate students. features a number of questions that teachers have created and given to pupils as homework or assignments.

The rapid development of information and technology (ICT) has had an impact on various fields, one of which is education. Today's educators are required to discuss ICT progress (Sholehah et al., 2021). Because the use of ICT can help teachers manage and improve teaching standards, there are a lot of teaching materials that are currently based on technology because to operate it requires an electronic device, such as a smartphone, laptop or computer, which allows students to be more easily guided. The development of LKPD will be more effective and in accordance with the times when learning media is innovated into electronics, one of which is the Electronic Student Worksheet (E-LKPD). According to (Kosasih, 2020) There are various kinds of teaching resources besides textbooks, including modules, student worksheets (LKS), handouts, and impressions. Furthermore, one of the learning resources used by educators and students is teaching materials. Electronic student worksheets are innovated to support and improve children's thinking so that they are more critical and motivated to learn. As a result, in order to reach optimal self-actualization, students in the learning process must work hard (Aradea & Harapan, 2019).

Supported by previous research (Sari & Susilowibowo, 2022) The purpose of this development investigation stage is to provide clear materials, identify objectives, and gather volunteers for Semester II Institute XI LKPD Practice. To ensure that the educational aim is

completed efficiently, the teacher must do research or educational activities such as designing a teaching model and growing learning materials (Yulaini & Anggraini, 2020). This LKPD was created using the Liveworsheet online application. The last paragraph (Fitriyah & Ghofur, 2021) Android-based E-LKPD can help users improve their learning disposition based on user responses to the application. The development model of this research is the 4D development model. The model used for financial analysis is the 4D model. Experts in material, language, and graphic design conducted validation assessments to determine the degree of feasibility of this project (Munafi'ah et al., 2021).

Based on prior observations made by researchers at SMK Negeri 5 Palembang, it was determined that while the school did provide financial accounting textbooks, they were insufficient for the number of students enrolled. As a result, students were still alternately working on questions or even reading textbooks. Even though educators have made their own E-LKPD and implemented it in class, students find it less interesting. Meanwhile, existing textbooks tend to be narrative in nature and do not fully require students to be able to find their own learning experiences.

It is hoped that this research can answer the needs of students, and therefore researchers are interested in doing research "Development of E-LKPD Accounting based on Higher Order Thinking Skills at SMK Negeri 5 Palembang".

RESEARCH METHODOLOGY

This study uses a Research and Development (R&D) process, and the final product is HOTS-based Accounting E-LKPD teaching materials which are used as Basic Accounting teaching resources for class X AKL at SMK Negeri 5 Palembang. With 3 students at the one to one exam level, 10 students in the small group, and 15 students in the field trial. One of these development models is ADDIE, which was created by Dick and Carry (1996) and published in (Sugiyono, 2021). The five stages of the ADDIE Model development are analysis, design, development, implementation, and evaluation.

According to (Sugiyono, 2021) Obtaining data is a research activity, so it is stated that data collection methods are important information when conducting research. Because collecting data is the main goal of interview research, documentation, questionnaires, observation and a mixture of the three. The following formula will be used to analyze the results of the teacher and student response questionnaire:

$$V_{\text{audience}} = \frac{TSe}{TSh} \times 100\% \quad (1)$$

Source: (Akbar, 2022)

E-LKPD is efficient if it meets the minimum criteria equal to or more than 81%.

The observation data obtained during the research is calculated using the following formula:

$$PK = \frac{F}{N} \times 100\% \quad (2)$$

Source: (Sudjana, 2017)

E-LKPD teaching materials are said to be effective if they meet the minimum effectiveness or more than 53%.

The data collected during the field test stage were in the form of pre-test and post-test in the Accounting E-LKPD teaching materials.

The following formula is then used to determine the yield. With a percentage that corresponds to the school where the study was conducted. The formula is as follows:

$$S = R \frac{W}{n-1} \times 100 \quad (3)$$

Source: (Purwanto, 2020)

Results

In research on the development of LKPD-Electronic accounting teaching materials based on this higher order Thinking skill. There are 5 stages based on the ADDIE Model, namely Analysis, Design, Development, implementation, evaluation.

This research has the goal of producing E-LKPD teaching material products to improve their effectiveness, accounting E-LKPD teaching materials that are tested for efficiency, and improving learning outcomes. This study uses the ADDIE model. According to (Suryani et al., 2019) at the level of implementation, researchers conducted one to one trials, small group trials and Field Trials.

Analysis stage

Needs analysis The analysis phase of the ADDIE model is its first phase. On this occasion the researcher interviewed the accounting subject teacher for class X AKL 2 SMK Negeri 5 Palembang to gather information. Curriculum Analysis. At the stage of curriculum analysis, the subject teacher provides an explanation of the curriculum used by SMK Negeri 5 Palembang.

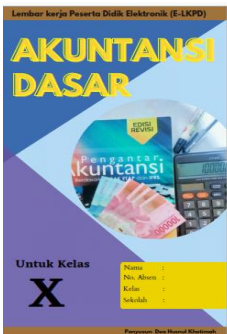
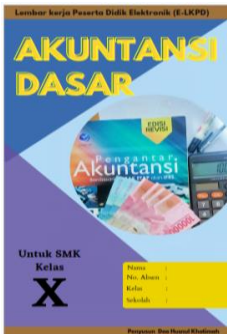
Design Stage

In the second stage, this is the stage where the researcher expresses ideas in detail to the product to be developed. This phase involves creating a design prefix. product to be developed. At this stage there are several steps , namely: Determining Core competencies (KI) and basic competencies (KD), 2. Making a prototype draft and 4. Designing the E-LKPD at the initial stage 3. Designing the HOTS-based E-LKPD with the help of the Canva application which is then implemented Upload to the Web <https://Liveworsheet.com> .

Development Stage

At this stage of development or development, the researcher tested the validity of 4 validators, specifically for the approval of two material experts, one media expert, and one linguist. This development stage was carried out to find out the advantages and disadvantages of the existing E-LKPD teaching materials where this product was the result of the development of the previous product. Based on the results of the HOTS-based E-LKPD, ism notes from the assessment of material experts, media experts, language experts are now being used to further improve product quality. The following is after the E-LKPD is determined based on the validator's suggestion:

Table 1.
Revision results from the validators

Before	After	Comment Description
		Image revision: in the book image show the letter "A" for class, add SMK.

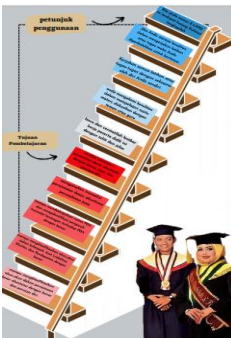
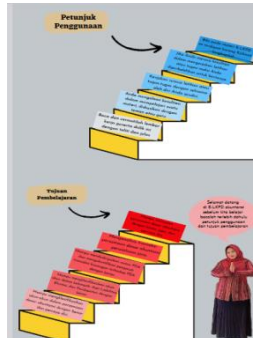
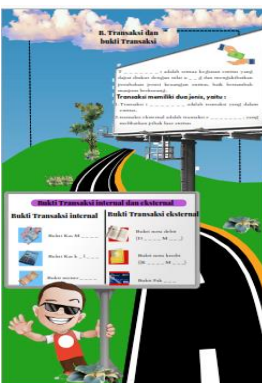


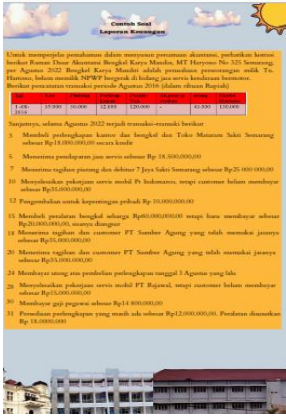
Before	After	Comment Description
		<p>Image revision: animated images of students in robes replaced by the teacher and preferably animated images of researchers' photos</p>
		<p>Image revision: billboards should be replaced with other types of billboards because the image has been used on billboards before.</p>
		<p>Image revision: the background color of the problem and the animation size of the building</p>



Image revision: animated pictures should be replaced with animated pictures of researchers' photos.



Animated images of the photographs of the researchers should be used in their place.



Image revision: Pay attention to the size of the letters and pay attention to the words affixes di.

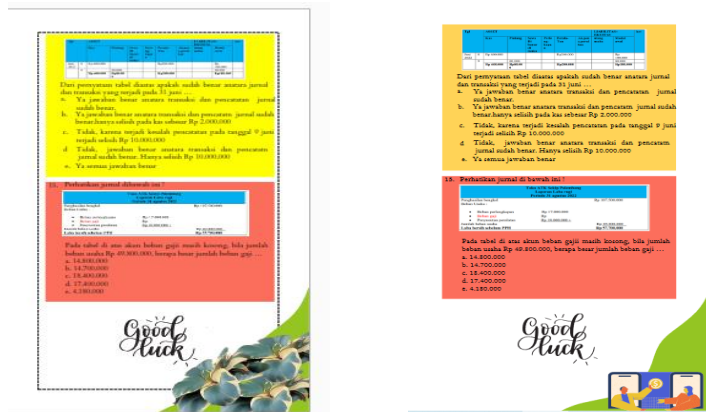


Image revision:
Pay attention to the size of the letters
The animation should be replaced.

Based on the results of the material experts, the final result was 87.5% with very valid criteria, media experts had 90.38% results with very valid criteria and finally, the linguist with a final result of 75.00% was in quite valid criteria. from this validation calculation is to combine the results of the validators with an average result of 84.29%. Accounting E-LKPD teaching materials are based on combined validation results from material experts, media experts, and HOTS linguists at SMK Negeri 5 Palembang obtaining an average result of 84.29% which is declared very valid.

Implementation stage

During the implementation phase, the researcher provides students with tested learning resources. Based on the results of a one-to-one questionnaire and comments from 3 class X AKL 2 students at SMK Negeri 5 Palembang, it can be concluded that the Higher Order Thinking Skills-based Accounting E-LKPD teaching material has an average yield of 89.81% with very valid criteria. This demonstrates that the one-to-one step creates goods that are examined for reliability.

The Higher Order Thinking Skills-based Accounting E-LKPD teaching material has an average yield of 93.06% with very valid criteria, according to the findings of the small group questionnaire and comments from 10 class X AKL 2 students at SMK Negeri 5 Palembang. demonstrates how small group stage output is checked for validity.

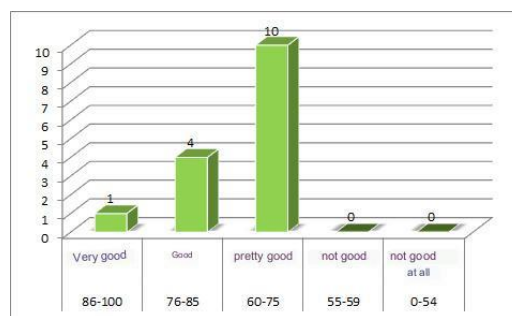


Figure 1.
Percentage of Field Trial Pre-test learning outcomes

In the picture above it is clear that students at the pre-test field trial stage got a score of 86-100 in the very good category, 76-85 good, 60-75 quite good, 55-59 not good and 0-54 not good at all

and The pretest student learning outcomes were 73.33 % in the good category, as shown in the table above.

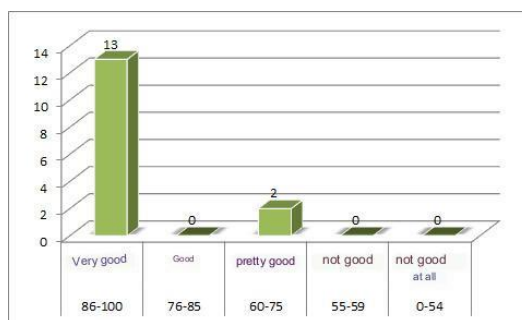


Figure 2.
Percentage of Study Results Field Trial Post-test

In the picture above it is clear that students at the post-test field trial stage got a score of 86-100 in the very good category, 76-85 good, 60-75 quite good, 55-59 not good and 0-54 not good at all and Post-test student learning outcomes of 86.13 % are in the very good category, it can be seen from the table above.

Observation

During the teaching and learning activities, the students seemed to pay attention and practice the teaching materials that had been explained and displayed both during the one to one test, small group test and field trial the researcher asked the observer to observe each student to see the level of engagement of the students of SMK Negeri 5 Palembang when accounting Higher-order thinking abilities that are used in teaching and learning activities are the focus of the E-LKPD teaching materials.

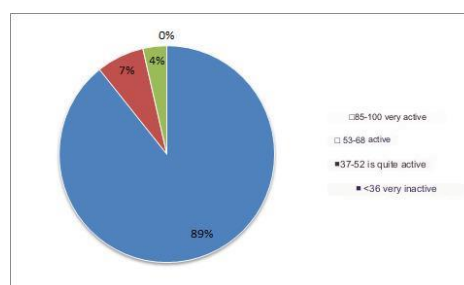


Figure 3.
Percentage of Observation Results of the entire class X AKL 2 SMK Negeri 5 Palembang

Based on the data above, it is known that the number of observations is 2487.5. And has criteria of 88.84 % who have very active criteria.

Evaluation Stage

The sixth stage of the ADDIE paradigm is the evaluation stage. Analysis, Design, Development and Implementation are the first four steps that are evaluated or revised in the evaluation stage. The evaluation phase is always carried out at each of these stages to produce quality and practical products.

Each stage of the evaluation ADDIE model has been carried out, when it is declared valid and does not need to be evaluated again, it will then proceed to the next stage. So all ADDIE processes and stages have undergone an Evaluation process.

Discussion

This research produced accounting E-LPKD teaching materials based on higher order thinking skills in basic accounting subjects on basic accounting equations. At the analysis stage, the researcher conducted a research analysis on curriculum analysis and needs analysis. Researchers interviewed teachers of basic accounting subjects.

It was originally designed by the researcher using a prototype, after which it moved to the development stage and was approved by linguists, material scientists, and media specialists. The pre-existing LKPD is used as the basis for the development of the E-LKPD. Based on the results of the combined validation of material experts, media experts and linguists, it can be concluded that HOTS-based accounting E-LKPD teaching materials at SMK Negeri 5 Palembang get an average result of 84.29%, which is declared very valid.

Three students conducted one-on-one trials of the product to determine its practicability, which was discovered through the distribution of questionnaires to students who had previously been allowed to view the E-LKPD product first. It can be concluded that the Higher Order Thinking Skills-based Accounting E-LKPD teaching materials have an average yield of 89.81% with very valid criteria. Meanwhile, based on the results of the small group questionnaire and comments through filling out the questionnaire for 10 students, it can be concluded that the Higher Order Thinking Skills-based Accounting E-LKPD teaching material has an average yield of 93.06% with very valid criteria. This indicates that the Small stage The Group produces products that are tested for validity and practicality.

Additionally, the field trial stage, namely the field test trial stage by carrying out the pre-test and post-test phases to observe student learning outcomes, demonstrates the efficacy of the accounting E-LKPD teaching materials. During the field test in the pre-test stage, students are given directly to fill in the questions on the question sheet without looking at the material in the teaching materials at this stage, obtaining results pretest student learning of 73.33% in the good category.

Furthermore, students were tested in the field test with the post-test stage, then the researcher gave directions to students to fill in the competency test questions in the accounting E-LKPD teaching materials, in order to see the abilities of students after seeing the material used in the accounting E-LKPD teaching materials it can be seen that the post-test student learning outcomes of 86.13% are in very good criteria.

Additionally, observations were made to monitor student activities and were made by an observer. It can be concluded that the teaching materials that were tested on students of SMK Negeri 5 Palembang increased activeness with a value of 88.84% which had very active criteria. The analysis above shows that the results can be trusted with supporting theory.

In addition, this research raises knowledge about the weaknesses and strengths in this Accounting E-LKPD teaching material, namely the components of this teaching material should be added such as sound and video effects so that students are more interested in learning accounting and because this E-LKPD is in the form of a link. Link Worksheet is an unpaid site so it's limited. It is recommended that teachers later record grades immediately because student work that is entered in the worksheet link account only has 30 days, the rest is lost. Therefore this E-LKPD can still be developed further, and needs to be made even more complete and interesting.

CONCLUSION

Development of Accounting E-LKPD Based on Higher Level Thinking Skills at SMK Negeri 5 Palembang is a conclusion drawn from research findings. 1) has an average approval level of 84.29%

from material experts, media experts, and linguists, which shows it is effective. 2) In terms of practicality, the average score on the one-to-one test with three students was 89.91% with very good criteria, and the average score on the small group test with 10 students was 93.06% with very valid criteria. 3) Testing of learning outcomes was carried out through field trials with 15 students, with an average pretest score of 73.33% being in good criteria and an average posttest score of 86.13% being in very criteria. Good. Thus, the learning outcomes of class X AKL 2 SMK Negeri 5 Palembang increased by 12.8%. And when the research was carried out it was declared successful after an average of 88.84 % of observations had very active criteria. Based on the results of this study related to the development of basic accounting E-LKPD based on higher order thinking skills at SMK Negeri 5 Palembang, the suggestions are given as follows. Teachers can use this E-LKPD as a future reference teaching material, because this E-LKPD is practical and very effective. very easy for students to learn anywhere and anytime. Apart from that, this E-LKPD also has disadvantages, because this E-LKPD is in the form of a link. Link Worksheet is an unpaid site so it's limited. It is recommended that teachers later record grades immediately because student work that is entered in the worksheet link account only has 30 days, the rest is lost. Students can use accounting E-LKPD teaching materials because these teaching materials make it easy for students to learn and repeat material anywhere and anytime, easy to carry anywhere and improve students' way of thinking more optimally. Can facilitate teaching materials that have been developed, so that the teaching and learning process using the E-LKPD can be carried out optimally. For further research, you can add recordings of material explanations or materials packaged in creative videos on accounting E-LKPD so that students are more interested and not bored while studying. For future researchers. For further research, you can add recorded explanations of material or material packaged in creative videos to the accounting E-LKPD so that students are more interested and not bored when studying.

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