Empowering Learning Through Innovative Worksheets: A Search, Solve, Create and Share Approach to Independent Practicum on Growth and Development Materials

Ayu Nadya Nur[1]*, Jamilah[1], Ilyas Ismail[1], Ainul Uyuni Taufik[1], Syamsul[1]
[1]Program Studi Pendidikan Biologi, Fakultas Tarbiyah & Keguruan
Universitas Islam Negeri Makassar, Makassar-Indonesia
*E-mail: ayuunn03@gmail.com

Abstract: This study aimed to develop LKPD based on Search, Solve, Create, and Share using the ADDIE model for learning materials on the growth and development of living things as well as assess the validity, viability, and efficacy of LKPD based on Search, Solve, Create, and Share for learning materials on the growth and development of living things. The research method used in this study was research and development, which refers to the ADDIE development model, which has five stages: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation. The data collection technique in this study was validity testing using validation sheets, practicality testing using student response questionnaires and educator response questionnaires, and effectiveness testing using student learning outcomes tests. The trial yielded the following findings: Firstly, the ADDIE development model was used to create the LKPD based on the search, solve, create, and share approach and data was collected during this process. Secondly, the LKPD based on the same approach was found to be highly valid, with an average value of 3.65. Thirdly, the level of practicality of the LKPD was also found to be high, with an average value of 3.4. Finally, the effectiveness rate of the LKPD was determined to be 89%, indicating that it is highly effective for use in the learning process. In conclusion, the research results demonstrate that the LKPD based on the search, solve, create, and share approach is valid, practical, effective, and thus appropriate for use.

Keywords: LKPD, Search, Solve, Create, And Share.

INTRODUCTION

Education plays a crucial role in an individual's social life, as it enables the development of their skills as humans and as members of society. The primary focus of education is not just on imparting knowledge, but also on shaping an individual's personality and awareness and passing down cultural and religious values to the next generation. Thus, it is essential for teachers, who serve as communicators in the learning process, to master their classes and use appropriate learning tools (Anto Hiroh, 2019). Student worksheets (LKPD) are a valuable learning tool for teachers, as they provide convenience and support for teaching and learning activities, both inside and outside the classroom. They offer a means for students to build their knowledge through various learning resources and demonstrate their skills and knowledge(Alvina & Agil, 2016). According to Hendri (2023), the general benefits include: (1) helping teachers design lesson plans, (2) encouraging student participation in the learning process, (3) providing students with structured notes on the material covered, (4) enhancing students' understanding of concepts through systematic learning activities, (5) developing students' process skills, and (6) actively engaging students in concept development. Using the

Student Activity Sheet (LKPD) (Trianto, 2010) as a learning resource can enhance the teaching and learning process, providing essential support for students in constructing their own knowledge.

The use of innovative and interactive worksheets, such as those based on the Search, Solve, Create, and Share (SSCS) learning model, can facilitate students in seeking and solving problems and exploring information, leading to a more meaningful learning experience (Wiwik dkk, 2016). The SCCS learning model enhances student engagement by presenting real-world challenges at the beginning of lessons, fostering curiosity and problem-solving skills through group discussions. Additionally, it incorporates interactive methods such as experiments, discussions, and presentations, keeping students actively involved in the learning process (Sanchia & Faizah, 2019). Implementing the SSCS-based worksheet approach can help students develop problem-solving skills, plan and create solutions, and collaborate with others to share the results (Pizzini, 1991; Diani *et al.,* 2019). By prioritizing the process of acquiring knowledge, students can become more active and engaged learners.

This approach is particularly useful during the current pandemic, where face-to-face learning is limited, and creative and innovative learning media are needed to support effective learning (Syulbi & Susilawati, 2018). In this study, a SSCS-based worksheet was developed for Biology students in SMA Negeri 1 Selayar, specifically for the practical implementation of the Growth and Development of Living Things material. This approach proved effective in encouraging independent learning, as students were able to seek and build knowledge to solve problems and complete practical assignments efficiently. By adopting this approach, teachers can optimize the learning process and provide students with a more engaging and meaningful learning experience.

RESEARCH METHODS

Research and development (R&D) is a set of research methods used to produce specific products and test their effectiveness (Sugiono, 2013). R&D is applied broadly to personal goals and time to complement product development and identify specific needs with detailed specifications (Khalifah, 2015). The ADDIE (analysis, design, development, implementation, and evaluation) development model, which consists of five stages: analyzing, designing, developing, implementing, and evaluating (Sutarti & Irawan, 2017; Branch, 2009), was used for the development of Search, Solve, Create, and Share (SSCS)-based LKPD learning media. The trial phase of this research was carried out at SMA Negeri 1 Selayar with 30 class XII students as research subjects.

The questionnaire was used as one of the instruments in this study to assess the effectiveness of the search, solve, create, and share (SSCS)-based LKPD. Learning outcomes tests were used to measure students' mastery of the material taught by the teacher. The test was conducted after students had covered several previous materials and was used to determine their mastery of the material. The data collection technique includes validity tests, practicality tests, and effectiveness tests. A validator conducts the validation, and the development of LKPD can be deemed valid if the value of all aspects shows an average value of > 3.4 (Suryo, 2020). The validity category can be seen in Table 1.

$$Ai = \frac{\sum_{i=1}^{n} Kij}{n}$$

Notations :

$\overline{Ai}$ = The average aspect of the i

K_{ij} = Average for the i-th aspect

N = The number of criteria in the i-th aspect

Table 1. Validity Criteria

Mark	Criteria
V > 3.4	Very valid
$2,8 \leq V \leq 3.4$	Valid
$2,2 \leq V \leq 2.8$	Valid Enough
$1.6 \leq V \leq 2.2$	Invalid
$V \leq 1.6$	Invalid

(Sumber: Suryo, 2020)

The practicality test of the media can be measured based on the results of the response questionnaire research for educators and students. It is said to be practical if it achieves an average value of ≤ 3.5 (Hasan, 2021). The practicality category can be seen in table 2

$$\overline{x} = \frac{\sum_{j}^{n} = o^{Ai}}{n}$$

Notations:

X = Total average

Ai = Average aspect

n = Number of aspects

Table 2. Practicality Level Criteria

Mark	Criteria
$3.5 \leq X \leq 4$	Very practical
$2.5 \leq X \leq 3.5$	Practical
$1.5 \leq X \leq 2.5$	Practical enough
$0 \leq X < 1.5$	Not practical

(Hasan, 2021)

The media effectiveness test was measured based on student learning outcomes tests. Learning is said to be successful classically if at least 80% of students achieve a complete score (Ety, 2017) the media is said to be effective if the percentage of completeness reaches >80 (Eko, 2014). The effectiveness level category can be seen in table 3.

$$N = \frac{SP}{TS} x \quad 100\%$$

Notations:

N = Value obtained by students

SP = Score obtained

TS = Maximum score

Table 3. Criteria for the Level of Effectiveness

| Mark	Criteria
> 80	Very effective
> 60-80	Effective
> 40-60	Effective enough
>20-40	Less effective
≤ 20	Very less effective

(Eko, 2014)

RESULTS AND DISCUSSION

This study focused on developing student worksheets based on the Search, Solve, Create, and Share model for class XII students at SMA Negeri 1 Selayar, specifically for the growth and development of living things. The development of this teaching material was based on three main aspects: validity, practicality, and effectiveness, as well as the ADDIE development model, which consisted of five stages: analyze, design, develop, implement, and evaluate. The following presents the stages of the ADDIE model to create the search, solve, create, and share model-based LKPD.

An analysis was conducted in five steps before proceeding with the development stage. First, the background of the problems was identified by observing and interviewing teachers. Second, learning objectives based on basic competencies were determined. Third, the students' characteristics were analyzed by observing their attitudes toward plant growth and development material. Fourth, the resources needed for the research process, including material, human, and technological resources, were identified. Finally, a product that could address the identified problems was determined, and in this study, it was teaching material.

The design stage was carried out after analyzing the identified problems. A product was designed to address these problems, and the procedures included compiling the necessary components for product development, determining objectives, and compiling validation instruments.

In this stage, product development was carried out based on the design developed in the previous stage. Procedures included preparing the subject matter, selecting and developing supporting media, developing products, and providing instructions for product usage. The modified appearance of the search, solve, create, and share-based LKPD for the growth and development material was presented as follows:
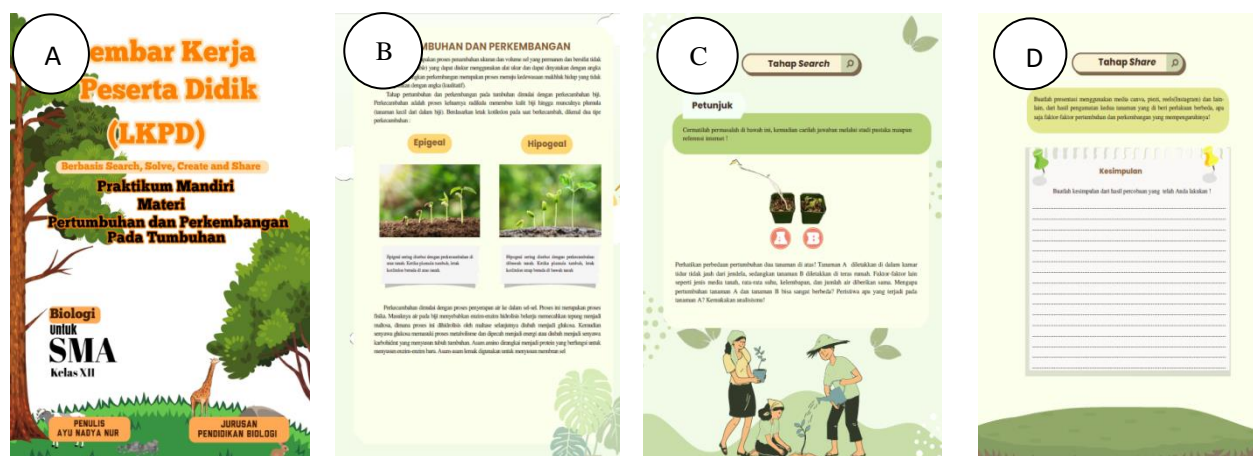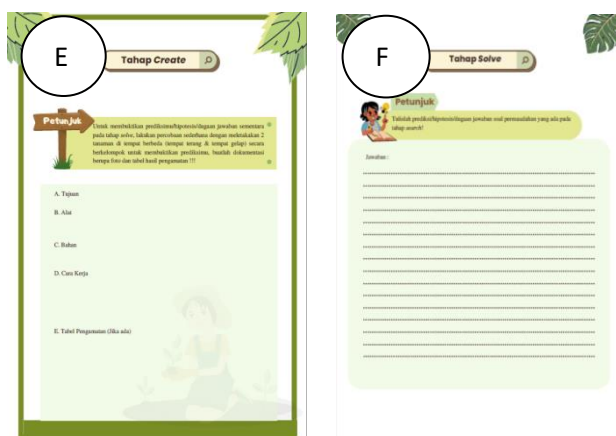
Figure 1. A. Picture of LKPD Cover, B. Picture of LKPD Material, C. Search LKPD Stage, D. Solve LKPD Stage, E. Create LKPD Stage, F. Share LKPD Stage

Before implementing the LKPD in real conditions, two validation experts examined the developed products. After the revi ew, the LKPD was revised based on the validator's suggestions to produce a valid and appropriate LKPD. Then, the revised LKPD was ready to be implemented in the learning process by distributing LKPD sheets to students.

During the implementation stage, the validated LKPD was implemented in real conditions with class XII students at SMA Negeri 1 Selayar. After the learning process was complete, students were given questions to assess the effectiveness of the developed LKPD according to the competency achievement indicators. In the evaluation stage, the researcher revised the developed LKPD based on the validation results, response questionnaires, and input for improving the LKPD. The goal was to ensure that the developed LKPD was suitable for use and could be expanded for its implementation, for example, by being developed for other basic competencies or implemented in other schools.

The validity level of LKPD is based on Search, Solve, Create and Share

The validity test of the LKPD was carried out based on SSCS to determine its validity and feasibility for implementation. Two experts reviewed several aspects, including appearance, LKPD components, material/content feasibility, question quality, language, and ease of use of LKPD. Based on the validator's suggestions and input, the LKPD was improved and submitted back for validation to produce a valid and feasible LKPD.

Table 4. Validator Assessment Results

Assessment Aspects	Evaluation	Category
Appearance	3.65	Very valid
Construct (LKPD Component)	3.7	Very valid
Content Material	3.75	Very valid
Question Quality	4	Very valid
Language	3.25	Valid
Ease of Use of LKPD	3.5	Very valid
Average	**3.65**	**Very valid**

Based on table 4, the results of validation by the validator on search, solve, create and share-based worksheets for all aspects including appearance, construct, content, quality of questions, language, and ease of use, an average value of 3.65 was obtained with very valid category. Thus, LKPD is declared feasible to be used in the learning process. A relevant study by Syamsurizal, 2023 and Misbah, 2021 showed that after considering several aspects of Search, Solve, Create, and Share, which constitute a unified whole and mutually support each other in developing LKPD based on Search, Solve, Create, and Share, the product is good and proper. Simanullang *et al* (2024), also said that for something to be declared valid, several aspects need to be examined, criticized, and given suggestions by the validator.

Practical level of LKPD based on Search, Solve, Create and Share

According to BB, teaching materials are more flexible in terms of their use. Students can study them in various conditions and opportunities, both inside and outside of school. This means that the use of teaching materials can increase the efficiency of independent learning, so that students can study the subject matter more flexibly, anytime and anywhere (Annisa *et al.,* 2022).

The practicality level of LKPD is seen based on the results of the questionnaire from the responses of educators and students. This response questionnaire was distributed during the implementation stage, precisely after the learning process had been completed. The following is the overall analysis of the responses of educators and students to LKPD based on search, solve, create and share in Table 5.

Table 5. Results of Responses to Using LKPD

No	Rating Type	Average	Assessment criteria
1	Teacher response	3.3	Practical
2	Student response	3.5	Practical
	Average	3.4	Very practical

Based on the results shown in Table 5, the practicality of the LKPD was assessed based on responses from both the teacher's and student's questionnaires. The teacher's response questionnaire obtained an average score of 3.3 in "the practical category," while the student's response questionnaire obtained an average score of 3.5 in the "practical category". The overall average score obtained was 3.4, which falls under the category of "practical. These results indicate that the search, solve, create, and share-based worksheets are practical to use in the learning process. This study is in line with Syamsurizal, 2023, research, which showed that the LKPD SCSS product developed is very practical to be used by students and teachers in carrying out the learning process. As Kosasi, 2021 said, teaching materials are flexible, allowing students to learn anytime, anywhere, both in and out of school, enhancing independent learning efficiency.

Level of effectiveness of LKPD Based on Search, Solve, Create and Share

To evaluate the level of effectiveness of the LKPD, student learning outcome tests were conducted. These tests were used to measure the level of understanding of the growth and development of plant material taught using the search, solve, create, and share-based worksheets. The tests were distributed during the implementation stage, after

the learning process had been completed. The percentage of student learning outcomes is presented in Table 6.

Table 6. Percentage of LKPD Effectiveness Level Results

Score	Completeness of Learners	Number of Students	Percentage
80-100	Complete students	28	100%
0-79	Incomplete students	0	0%
	Amount	**28**	**100%**

Following the completion of the learning outcomes test, it was observed that all 28 students achieved a score of at least 80, which is the minimum passing grade set by the school. Consequently, all students were deemed to have completed the learning process with a 100% success rate. Search, Solve, Create, and Share-based LKPD effectively increases student motivation and engagement. This LKPD encourages independent learning, includes a variety of practice questions for self-assessment, and enhances learning through interactive simulations (Kosasi, 2021; Munawaroh, 2022).

These findings are relevant with Maimun & Bahtiar (2022); Nastiti *et al.,* (2017), study that the SSCS learning model is a simple and practical approach that actively involves students. Students collect ideas (search), solve problems (solve), draw conclusions (create), and present their findings (share).

CONCLUSION

In conclusion, the research and discussion on the development of LKPD based on Search, Solve, Create, and Share material Growth and Development in Class XII of SMA Negeri 1 Selayar using the ADDIE development model have shown positive results. The LKPD has met the criteria of being very valid with an average score of 3.65 and practical with an average score of 3.4. Furthermore, the LKPD has been proven to be very effective, with a 100% completion rate in the student learning outcomes test. These findings suggest that the LKPD based on search, solve, create, and share can be used as a learning tool in the teaching of growth and development in plants for students in class IX.

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