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Development of Canva-Based LowkE-Book Learning Media as a Companion to PjBL to Improve Student Learning Outcomes

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Abstract: This research uses research and development methods which refer to the Borg and Gall model. This research was conducted with the aim of developing and testing the feasibility, practicality and effectiveness of Canva-based LowkE-Book learning media. This research involved 27 students with 6 small-scale trial subjects and 21 large-scale trial subjects at SD Negeri Sadeng 01. The data collection technique used was a test technique (pretest-posttest) and non-test in the form of observation results, questionnaires, interview results and document data. The validation results carried out by media expert validators and material experts showed that the Canva-based LowkE-Book learning media had met the valid criteria with a score of 90% by the media expert validator, and 96% by the material expert validator. Based on the pretest-posttest results, it is known that the Canva-based LowkE-Book is effective in improving student learning outcomes as evidenced by the increase in the average pretest score from 42.85 to 85.14 at the time of the posttest and the n gain test results obtained <g> value gain of 0.74 in the high category. Based on the results of the response questionnaire distributed, very positive responses were obtained from teachers and students. Based on these results, it can be concluded that the Canva-based LowkE-Book learning media is effective for improving learning outcomes in science subjects and is feasible and practical to apply in student learning.

Keywords: Canva; E-books; Learning outcomes

Introduction

Education is the main pillar for creating a golden generation that is intelligent, critical, creative and solution-oriented. To realize quality education, one of the things that requires the role of the teacher is as a provider of space for students to grow and process in gaining knowledge. With the qualified skills possessed by teachers, they can support the growth of students with the skills they have. To improve the skills possessed by students, an effort is needed to build an active, creative, interactive and fun learning atmosphere. This is in accordance with Permendikbudristek Number 16 of 2022 concerning Educational Process Standards Chapter III Article 9 paragraph (1) which reads: "The implementation of learning as intended in Article 2 paragraph (2) letter b is held in an interactive, inspiring, fun, challenging learning atmosphers, motivate students to participate actively and be able to provide sufficient space for initiative, creativity, independence in accordance with the students' talents, interests and physical and psychological development" (Sudarsana et al., 2019).

Apart from being supported by Permendikbudristek Number 16 of 2022 concerning Educational Process Standards Chapter III Article 9 paragraph (1), education will really have an impact if it can implement an appropriate curriculum. According to Law Number 20 of 2003 concerning the National Education System Chapter I Article 1 Paragraph (19), "Curriculum is a set of learning plans related to objectives, content, teaching materials and methods

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used and used as a guide in organizing learning activities for achieve a national education goal" (Nasional, 1982). To create optimal learning tools, teachers, as the main determinant in packaging learning, need the right steps to choose learning tools that are appropriate to the material to be taught (Raupu et al., 2022). In this case, teachers need to develop an interesting, effective and efficient learning tool (Maulida et al., 2022). Learning media as a tool in learning can help teachers realize an effective and efficient teaching and learning process. Learning media are physical tools that are useful for conveying the content of learning material (Alika & Radia, 2021). According to Marpanaji et al. (2018), Learning media are all forms of objects and tools that can be used to support teachers in the learning process.

Learning media is a method or tool used with the aim of transmitting knowledge in order to improve students' learning skills. Media also plays a role as an effective achiever of educational goals in order to improve the quality of student learning (Sri Utami et al., 2023). Learning media can be in the form of video, text, audio, visuals and manipulative objects (Handayati, 2020). The development of technology and information can be utilized by teachers to create technology-based learning media in order to foster students' interest and motivation to learn. One effort to increase students' learning motivation is by creating innovative teaching materials (Ilafi et al., 2023). Teachers can create technology-based interactive media as a companion to teaching materials to support and complement conventional teaching and learning processes, in terms of methods, material objectives, methods and assessment tools (Ambarwati & Darmawel, 2020).

In addition, learning must involve the use of technology and information in an integrated, systematic and effective manner so that it can be adapted to situations and conditions to increase efficiency and effectiveness in learning (Marini et al., 2022). By utilizing technology-based learning media, abstract material or concepts can be made concrete because several media designed in one whole can contain images, text, audio, animation, simulations and games (Ismawati et al., 2023). One example of learning media that can be used by teachers apart from being a learning media as well as a source of teaching materials is E-Books. E-Book is an abbreviation of Electronic Book (Gaol et al., 2019). According to Zhang et al. (2013) E-Books or digital books are computer-based learning media that contain images and covers along with graphic videos which are usually created using Adobe Reader or Sigil which contain text, HTML and Equb formats. According to Sari et al. (2022) E-Books or digital books are a form of sophisticated technology that is packaged concisely and efficiently and are used as a means of displaying information in the form of text, images, video, audio and other multimedia.

E-Books were chosen because they allow teachers to present varied material and can make it easier for students to understand the material through components that can be integrated into e-books such as audio, images and learning videos (Hanikah et al., 2022). Attractive text and image elements in e-books can increase students' motivation to learn and make it easier for students to understand the material, thus providing a different experience in the learning process (Musdalifah et al., 2024a). The presence of e-books plays an important role in improving learning outcomes, making learning effective and efficient, and is not as outdated as printed books (Anwar et al., 2021). In creating E-Book designs, teachers can utilize various platforms. One platform that can be easily used to create E-Book designs is Canva. According to Noor et al. (2023), Canva is an online design program that is available to provide various tools such as presentations, resumes, pamphlets, posters, brochures, graphics, infographics, banners, bookmarks, bulletins and so on.

Another opinion was expressed by Holisoh et al. (2023) Canva is a design application that can be easily accessed via laptop or mobile devices, its use can be used by various age groups, even those who are not part of the millennial generation, because it has an intuitive interface and features that are easy to use. Canva's attractive learning media display design can help make it easier for students to learn. The Canva application has advantages, including being able to increase teacher creativity in designing learning media, offering various graphic designs, templates and animations, and can be easily accessed not only via laptop, but also via smartphone (Dewi & Setyasto, 2024). The presence of Canva according to Triningsih (2021) can make it easier for teachers and students to carry out learning process activities by utilizing technology, skills, creativity and other benefits. Utilizing technology as a medium for learning will spark interest, enthusiasm and a great sense of curiosity about the material to be studied and can influence learning outcomes. E-Book learning media can improve student learning outcomes.

According to Khusna et al. (2023) Learning outcomes are learning achievements, while learning achievements are indicators of changes in behavior in students. Students can be declared to have completed their studies if their learning outcomes have achieved the learning objectives or minimum completeness criteria set by the teacher. According to Magdalena et al. (2023) Assessment of learning outcomes is a very important component for evaluating student progress and achievement. Learning outcomes are influenced by two main factors, namely internal factors and external factors of students. Another factor that influences

learning outcomes is students' learning activities in the learning process (Hardiansyah & Mulyadi, 2022). Based on observations and interviews conducted by researchers with the class V teacher at SDN Sadeng 01 on February 27 2024, the researchers found that several students still had difficulty understanding the material in the science and sciences subject about the human respiratory system, thus affecting the students' learning outcomes. The fifth grade teacher also said that there are several factors that influence the low learning outcomes of students, such as students who are not focused during learning, students having difficulty understanding and remembering the material, lack of motivation within students, and a lack of instilling a sense of competition in themselves so that students tend to surrender to the learning results obtained.

When the learning process takes place, teachers more often apply the PBL (Problem Based Learning) learning model using the lecture method, so that students easily get bored and their focus is diverted to other things. Teachers have implemented technology-based learning media but use it not often due to limited facilities and infrastructure, this causes the learning process to sometimes run less than optimally. Based on the problems that have been described, a learning media is needed that can attract students' attention by developing a variety of technology-based learning media so that it can influence learning outcomes for the better. Researchers will develop learning media in the form of an E-Book called LowkE-Book which was created using the Canva application. E-Books can be combined with innovative learning models which are seen as capable of improving student learning outcomes (Susanti et al., 2021).

This media was developed as a tool to help students understand learning resources well. The LowkE-Book learning media contains several important components to support the learning process, such as material about the human respiratory system, video tutorials for making projects for teaching aids to model human breathing, as well as student worksheets. The presence of images and videos in the LowkE-Book learning media can make it easier for students to understand and remember the material. Apart from understanding the material through theory, students can easily remember the material through the process of making teaching aids directly in the classroom. Based on the background above, researchers are interested in taking up research entitled "Development of Canva-Based LowkE-Book Learning Media as a Companion to PjBL to Improve Learning Outcomes".

Method

This research uses research and development (R&D) methods. The researcher used a research and development procedure that had been adapted and modified from Borg and Gall which consisted of 10 steps, but the researcher was only limited to step 8 due to time and cost limitations. The steps in this research include: (1) analysis of potential and problems; (2) collect information; (3) product design; (4) product validation; (5) design revision; (6) product testing; (7) product revision; (8) trial use. At the potential and problem analysis stage, the researcher conducted interviews with class V teachers at SD Negeri Sadeng 01, class observations, and collected document data in the form of learning outcomes in the assessment of the science and science subject on the human respiratory system. This is done to determine the characteristics and needs of students, as well as find solutions to overcome problems that occur in the learning process. The next step is to collect information to plan products that will be developed to overcome the problems found by distributing student needs questionnaires. After analyzing the student needs questionnaire, researchers began designing the product.

The product design is adjusted to the student needs questionnaire and adapted to the problems found. The product design is also adapted to the material in the predetermined learning outcomes. In the next step, namely design validation, at this stage the researcher invites several experts or experts who have experience in their field, namely media experts and material experts to assess the new design that has been designed by filling in the validation sheet that has been prepared by the researcher. After the design has been validated by the validator, the next step is product revision. Product revision is carried out by improving the product according to input provided by expert validators so that the product can be tested.

The next stage is product testing. At this stage, the researcher tested the product in class V with a small-scale group of 6 students using a purposive sampling technique based on different levels of cognitive abilities. At the product testing stage, learning was carried out by applying Canva-based LowkE-Book media. Then after the learning had been completed, the researcher distributed response questionnaires to the Canva-based LowkE-Book media. After the teacher and students filled out a response questionnaire to the Canva-based LowkE-Book media, the researcher analyzed the questionnaire, if there was input it was used as material for improving the product which had been tested. The final stage that the researchers carried out was the trial use stage. In this stage, the researcher re-tested the revised product on a larger scale group in class V with a

total of 21 students. This stage is carried out with the aim of finding out the effectiveness of the product that has been developed based on the learning results that have been obtained.

The type of data used in this research is primary data. This research uses qualitative and quantitative research methods. In qualitative data, researchers collected data in the form of observations, interviews with class V teachers, distribution of teacher and student questionnaires, and documentation of learning outcomes. For quantitative data, researchers collected test data in the form of student pretest-posttest results, expert validator questionnaires, teacher and student media response questionnaires to the media. The research design used in this research is pre-experimental design, with a one group pretest-posttest design model. This form of experiment aims to measure students' knowledge before and after being given treatment. The data collection technique used is non-test and test techniques. Non-test techniques include observation, structured interviews, and student needs questionnaires. In the test technique, data collection was in the form of expert validator questionnaires, teacher response questionnaires to the media, student response questionnaires to the media and multiple choices type test questions totaling 25 questions which were tested on students.

To determine the feasibility of the product being developed, researchers analyzed data in the form of assessments from media expert validators and material expert validators using a Likert scale. To determine the practicality of the product, researchers used a questionnaire on teacher and student responses to the Canva-based LowkE-Book media. Then, to determine the effectiveness of the product being developed, researchers analyzed the data using a gain test based on the results of the pretest-posttest which was tested on students in small-scale and large-scale groups.

Result and Discussion

Potential and Problems

Based on the results of the pre-research, researchers found several problems, namely students who had difficulty understanding and remembering the material, as well as the use of learning media that was not optimal and did not attract students. Apart from that, there are still learning outcomes for class V students in science and science subjects that do not meet the Minimum Completeness Criteria (KKM) where the KKM set by the school is 80. It is known that the total number is 27 students, 9 (33.33%) of whom have met the KKM score in the science and sciences subject on the human respiratory system, while the remaining 18 (66.66%) students did not meet the KKM score. So, a new innovation is needed in the learning media that will be used, in order to improve the quality of learning for class V students, especially in science and science subjects.

Gather Information

Initial data collection was carried out by researchers by distributing questionnaires about students' needs for the learning tools to be developed. When analyzing student needs questionnaire data, data was found that students preferred learning media in the form of videos as well as lecture and group discussion learning methods. In this case, researchers are interested in developing learning media that focuses on teaching materials that include practical videos on making breathing models by applying the Project Based Learning (PjBL) learning model (Chang et al., 2024).

Product Design

Canva-based LowkE-Books are designed according to the learning outcomes and learning objectives to be achieved. This media was developed with the concept of teaching materials that contain learning videos and LKPD, which consist of writing, audio, video and images that suit the characteristics of students so that they attract students' attention and motivation to learn. This learning media is designed using the Canva application with a product ratio in the form of a website, and contains video tutorials (Ikhlas et al., 2023). Once the media design is ready, the design is exported in the form of a website link.

Figure 1. Product cover

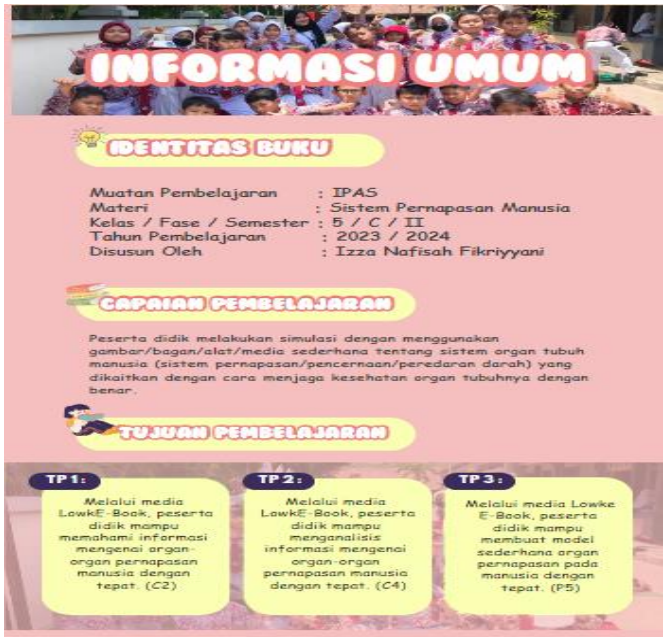

Figure 2. Product identity

Figure 3. Product contains materials

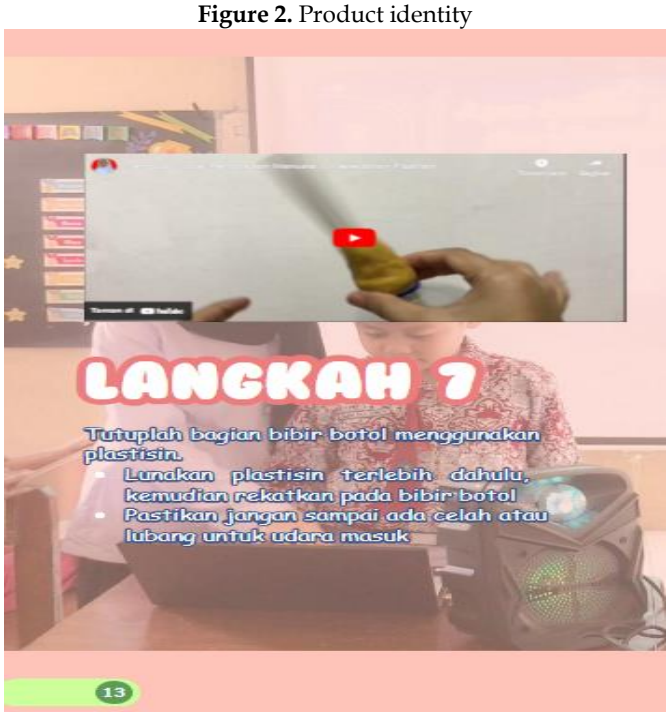

Figure 4. Product contains material video

Figure 5. Product contains LKPD

In designing products, the steps taken by researchers are, preparing materials, design layout and design format; product creation; application of LowkE-Book media.

Feasibility of Canva-based LowkE-Book Product Design Validation

At this stage the researcher validates the product with competent media and material expert validators to test the feasibility of the product the researcher is developing. The learning media expert in this research is a lecturer in the elementary school teacher education study program, and the material expert in this research is a lecturer in the elementary school teacher education study program in the science field. After the media developed is assessed by the validator, input will be received as improvements to the product being developed.

Table 1. Expert Validator Assessment Results on Canva-Based LowkE-Book Learning Media

Feasibility aspect	Validation index%	Information
Media display	90	Valid
Material	96	Valid

Table 1 shows that the validation results provided by the validator have valid results because they obtained a score above 75% which is included in the very feasible criteria (Ghaisani & Setyasto, 2023). The development of Canva-based LowkE-Book media was declared valid in its entire content or material, appearance or media, and ready to be tested (Amini & Pujiharti, 2021; Susanti et al., 2020). This is in line with research Dwijayanti et al. (2022) that the validation results of the e-book media they developed are valid as a whole. The development of e-book media received a validation score of 91% "very worthy", and a material expert validator score of 90% "very worthy". Other research was conducted by (Prastyana et al., 2023) that the results of the validation of the e-book media developed, obtained a score of 92% from media experts, then obtained a score of 89% from material experts. So, e-book learning media is very suitable to be used as a learning media (Surya et al., 2023; Nurhikmah et al., 2021). Other research regarding e-book development was carried out by Sesnawati et al. (2024) that the media expert validation results obtained a score of 94.5% and material validation 92.66%. Thus, the e-book media developed is categorized as media that is very suitable for use.

Product Revision

Researchers received input from media and materials experts as improvements to the products being developed. The input given to media experts is improvements to the color display and changes in the shape of the media ratio. Then the input provided by the material expert is, adding material after the practice video for making breathing models on learning media.

Figure 6. Product cover image before revision

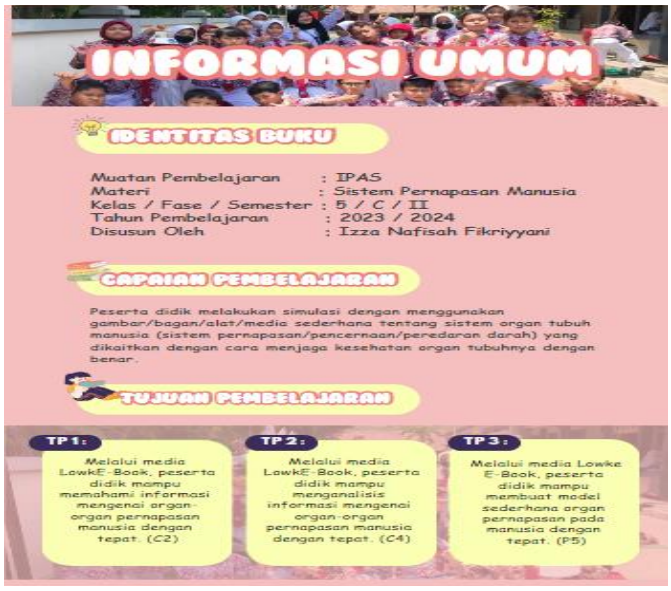

Figure 7. Product identity before revision

Figure 8. Product cover after revision

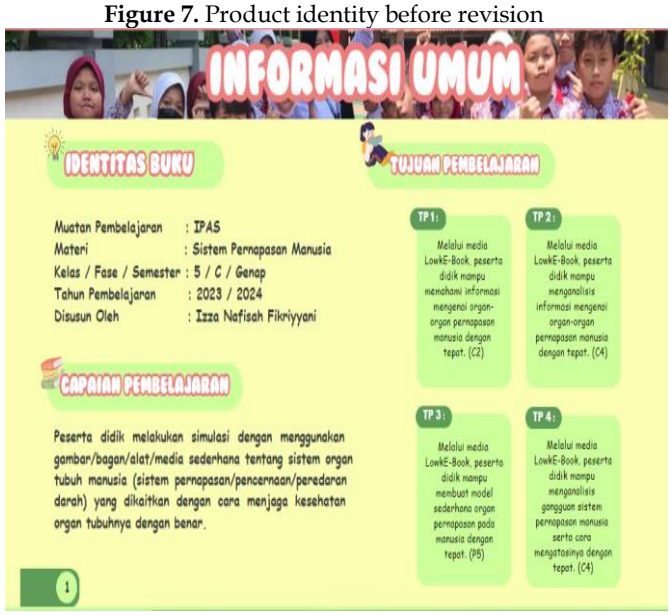

Figure 9. Product identity after revision

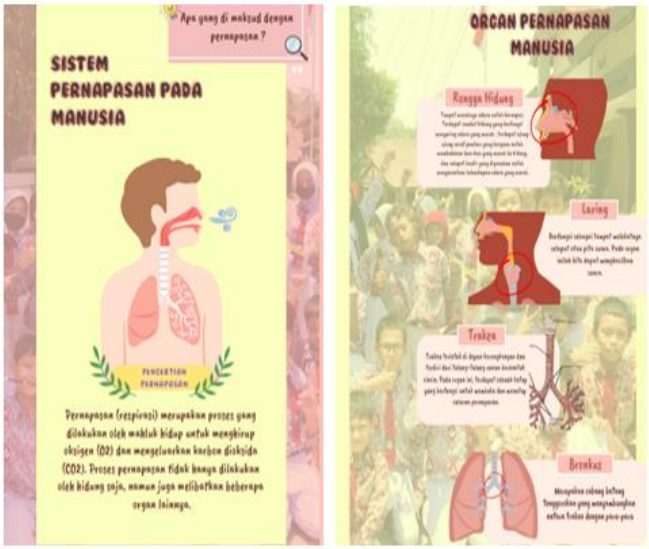

Figure 10. Product material before revision

Figure 11. Product material after revision

Figure 12. Product material after revision

Figure 13. Product video before revision

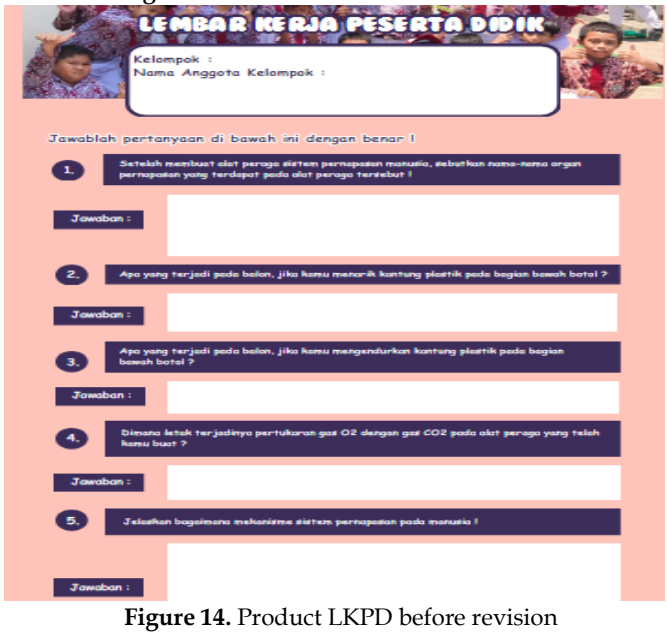

Figure 14. Product LKPD before revision

Figure 15. Product video after revision

Figure 16. Addition of product material after revision

Figure 17. Product LKPD after revision

Practicality of Canva-Based LowkE-Book Learning Media

At this stage, researchers conducted trials on small-scale groups with 6 class V students. Students are selected heterogeneously based on the level of student learning outcomes, namely 2 students with the highest scores, 2 students with medium scores, and 2 students with the lowest scores. After the learning was completed, the small-scale students were distributed a response questionnaire to the Canva-based LowkE-Book media that had been used. Then the teacher was also given a response questionnaire to the Canva-based LowkE-Book media. The response questionnaire has 15 questions containing 2 aspects, namely, media quality and material content. To test the practicality of the media, questionnaires that have been distributed to students in small-scale groups and teachers are then analyzed to find the final results of the data. The recapitulation to measure the percentage of teacher response questionnaire answers to the Canva-based LowkE-Book media is as follows:

$$NP= \frac{R}{SM} X\ 100\% \quad (1)$$

Table 2. Response Results of Small-Scale Group Teachers and Students to Canva-Based LowkE-Book Media

Respondent	Practicality index%	Information
Teacher	100	Very positive
Learners	87.78	Very positive

Table 2 shows that the results of teachers' and students' responses to Canva-based LowkE-Book media had very positive results because they obtained scores above 75% (Ghaisani & Setyasto, 2023). So, the Canva-based LowkE-Book media is stated to be very positive and practical, so there are no revisions and can be tested on large-scale groups.

Table 3. Results of Large-Scale Group Teacher and Student Responses to Canva-Based LowkE-Book Media

Respondent	Indeks kepraktisan	Information
Teacher	100	Very positive
Learners	85.20	Very positive

Table 3 shows that the results of teachers' and students' responses to Canva-based LowkE-Book media had very positive results because they obtained scores above 75%. So the Canva-based LowkE-Book media is said to be very positive and practical to use as a learning medium. This is in accordance with research that has been conducted which explains that the teacher and student response questionnaire to the Canva-based E-Book learning media that was developed obtained results above 70%, thus showing very positive results, which means that the Canva-based E-Book media is practical for use in study. Another research regarding E-Book learning media was conducted by Kristi et al. (2023) and Musdalifah et al. (2024b) that the results of the teacher's response to the media being developed obtained a percentage of 100% in the very positive category and student responses obtained a percentage of 97% in the very positive category. This proves that E-Book learning media is practical to use in learning.

Effectiveness of Trial Using Canva-based LowkE-Book Media

Product trials were carried out on large-scale groups to determine the effectiveness of the product based on student learning outcomes. The research design used is a pre-experimental design with a one-

group pretest-posttest design model, namely there is a pretest before treatment is given and a posttest after treatment is given.

Table 4. Pretest and Posttest Results of Students on Trial Using Canva-based LowkE-Book Media

est type	Average	Difference average
retest	42.85	42.28
osttest	85.14	

Based on Table 4, it is known that the average student learning outcomes show an increase of 42.28 in large-scale product trials. The data shows that there are differences in the learning outcomes of students in science and science subjects on the human respiratory system in class V of SD Negeri Sadeng 01 and there are differences before and after using the Canva-based LowkE-Book learning media. To determine the criteria for increasing the average pretest and posttest, researchers analyzed the data using the N-gan test by comparing the difference between SMI and pretest.

Table 5. Average Test Results (N-gain)

Difference average	N-gain	Criteria
42.28	0.74	Tall

Based on Table 5, it is known that the average difference in pretest-posttest results is 42.28. This shows that the grades of class V students at SDN Sadeng 01 have increased on average by 0.74 and are included in the high criteria. This average increase shows that the Canva-based LowkE-Book learning media has succeeded in improving the learning outcomes of class V students at SDN Sadeng 01. This is in accordance with research conducted by (Chercules et al., 2023) that the results of the n-gain value of their research show a figure of 0.8 with a limit of g> 0.7 and above and is included in the high criteria. This proves that e-book learning is very effectively developed to improve student learning outcomes. Another research was conducted by Setyani et al. (2024) who developed the PjBL model science E-Book learning media. The research results show that the PjBL model science e-book developed can improve students' creative thinking skills as proven by a normalized gain test of 0.70 in the high category.

Conclusion

Based on the research that has been carried out, it can be concluded that the Canva-based LowkE-Book learning media can improve the learning outcomes of class V students at SDN Sadeng 01, in science learning. This result is proven by the expert validator's assessment regarding the suitability of Canva-based LowkE-Book media, which obtained a product validation score of 93%, which means that the product is very suitable for use as learning media. The results of teacher responses to the media show a percentage of 100% and student responses to the media show a percentage of 86.49%, which means that the product is very practical to use. Data analysis of student learning outcomes in the pretest-posttest scores has increased with an average difference of 42.28 and an N-gain of 0.74 which is included in the high category. After analyzing the data from the feasibility test, product practicality and product effectiveness, it can be concluded that the Canva-based LowkE-Book media is declared as a feasible, practical and effective medium for improving the learning outcomes of class V students in science subjects.

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Author Contributions

Ccontributed to developing products, conducting research, analyzing data and compiling articles; I. N. F.; T. S., T.: as supervisor during the implementation of research activities up to the preparation of articles.

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Conflict of Interest

There are no conflicts of interest in research activities or in preparing articles.

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