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Development of Interactive Learning Media Based on *Lectora Inspire for* Science Subjects to Improve Science Literacy of Fifth Grade Elementary School Students

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Abstrak

Media Pembelajaran Interaktif Mata Pelajaran IPA Materi Siklus Air bebrasis Lectora Inspire dikembangkan berdasarkan permasalahan yang terjadi pada proses belajar mengajar di kelas V Al Bari' SDIT AS Salam. Penelitian ini dikembangkan dengan produk berupa aplikasi Dekstop yang dapat diakses menggunakan komputer pada lab komputer sekolah sebagai pemanfaatan fasilitas infrastruktur sekolah. Tujuan dari penelitian ini adalah untuk mengembangkan media pembelajaran interaktif mata pelajaran IPA kelas V berbasis Lectora Inspire di SDIT As Salam, serta mengetahui tingkat kelayakan media pembelajaran mata pelajaran interaktif materi IPA Siklus berbasis Lectora Inspire berdasarkan hasil penilaian oleh ahli materi, ahli media, ahli bahasa , dan peserta didik kelas V Al Bari' SDIT As Salam. Metode yang digunakan dalam penelitian ini yaitu metode Research and Development (R&D) dengan model pengembangan ADDIE yang terbatas sampai tiga tahap yaitu, Analysis (Analisis), Design (Desain), dan Development (Pengembangan). Produk akhir yang dihasilkan berupa aplikasi Dekstop yang telah divalidasi oleh ahli materi, ahli media, dan ahli bahasa serta telah diuji cobakan kepada peserta didik kelas V Al Bari'. Hasil uji kelayakan ahli media sebesar 96%, ahli materi 95%, dan ahli bahasa 76%. Akumulasi penilaian dari para ahli memperoleh nilai 89% medapatkan kategori sangat layak. Penilaian oleh peserta didik 91,1%, dan penilaian guru 97%. Akumulias penilaian dari peserat didik dan guru memperoleh nilai 94,5% sehingga masuk dalam kategori sangat paraktik. Sehingga media pembelajaran berbasis, Lectora Inspire secara keseluruhan sangat layak untuk digunakan oleh peserta didik pada kegiatan pembelajaran.

Kata Kunci : Media Pembelajaran; Lectora Inspire; Literasi Sains; Sekolah Dasar

Abstract

Interactive Learning Media for Science Subjects Water Cycle Material based on Lectora Inspire was developed based on problems that occurred in the teaching and learning process in class V Al Bari' SDIT AS Salam. This research was developed with a product in the form of a Desktop application that can be accessed using a computer in the school computer lab as a use of school infrastructure facilities. The purpose of this study was to develop interactive learning media for science subjects for class V based on Lectora Inspire at SDIT As Salam, and to determine the level of feasibility of interactive learning media for science subjects Cycle material based on Lectora Inspire based on the results of assessments by material experts, media experts, language experts, and students of class V Al Bari' SDIT As Salam. The method used in this study is the Research and Development (R&D)

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method with the ADDIE development model which is limited to three stages, namely, Analysis, Design, and Development. The final product produced is a Desktop application that has been validated by material experts, media experts, and language experts and has been tested on class V Al Bari' students. The results of the feasibility test of media experts were 96%, material experts 95%, and language experts 76%. The accumulation of assessments from experts obtained a score of 89%, getting a very feasible category. Assessment by students 91.1%, and teacher assessment 97%. The accumulation of assessments from students and teachers obtained a score of 94.5%, so it is included in the very practical category. So that learning media based on Lectora Inspire as a whole is very feasible for use by students in learning activities.
***Keywords** : Learning Media; Lectora Inspire;Science Literacy; Elementary School*

INTRODUCTION

The purpose of national education, according to Article 3 of Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System (UUSPN/20/2003), is to help students reach their full potential while also forming the character and civilization of a distinguished nation. to develop into an individual who has high values, is healthy, knowledgeable, creative, independent, and believes in and is devoted to God Almighty; to become a responsible and democratic citizen.

The existence of National Education Standards, which serves as the minimum requirements for Indonesia's educational system and is outlined in government regulation Number 32 of 2013, which serves as a guide for creating curricula, has supported the implementation of education to meet national education goals. According to UU SISDIKNAS NO 20 of 2003, the curriculum in education is a collection of plans and arrangements pertaining to the subject matter, learning objectives, and resources as well as the techniques employed to provide guidance for structuring educational activities in order to meet certain learning objectives.

Education is the most important foundation for character development and improving the quality of human resources to be able to learn. Learning is an activity or activity of seeking knowledge so that each individual gains a new understanding of something. According to (Moh. Uzer Usman, 2006) in (Junaedi, 2019) Learning is a process that contains a series of actions by teachers and students on the basis of reciprocal relationships that take place in educational situations to achieve the desired goals. Therefore, learning activities are very important in forming quality characters to achieve the desired goals.

Elementary School as an educational institution basically aims to prepare students to face the future life by developing the potential possessed by students. In its implementation, learning that takes place in schools still faces various problems, including the lack of students' ability to read and understand the subject matter delivered by the teacher. Learning success is determined and influenced by several aspects including, basic student abilities, learning motivation, and also learning media provided and applied by the teacher.

The 2013 curriculum has determined that science as an integrated subject to develop skills to develop thinking skills, processes and development of scientific attitudes. Therefore, science learning requires an activity plan with the aim of attracting students' interest.

Natural Science (IPA) is a science that studies nature and its surroundings objectively. In (Barokah, 2022) it is said that science is a series of concepts and conceptual schemes that are related to each other and which grow as a result of experimentation and also the results of observation, and are useful to be enjoyed and tested further.

In science learning, teachers need media to support the continuity of the learning process and understanding of concepts for students. Therefore, teachers should strive for a learning process in science material that is creative, innovative, effective and also fun. This can be achieved if the selection of learning media that will later be able to make students easily understand the material presented by the teacher.

Lectora Inspire application-based interactive learning media can be one of the media for delivering material in the form of digital applications. With the increasing development of digital technology, the use of interactive learning media can be an effective solution to support the sustainability of learning, as an Authoring Tool platform, *Lectora Inspire* provides various interactive features such as images, audio, and video to become a learning experience for students. *Lectora Inspire* is *an authoring tool* that can be used to create interactive multimedia learning media based on audio-visual, development *software* used for learning based *(e-learning).* As an authoring tool that is currently being widely developed. *Lectora Inspire* has several advantages over other *e-learning authoring tools* (Laksini, 2018).

Based on the results of observations and interviews obtained by researchers with teachers and students of class V SDIT As Salam, this school does not only focus on providing traditional understanding of subject matter but also involves students in utilizing technology to improve their digital skills. In this case, researchers are interested in discussing material regarding the water cycle. Through the results of interviews and observations with teachers and students there, the challenges to making water cycle learning more interesting and relevant to students turned out to be, among others, the lack of interactivity in student involvement when learning takes place is one of the problems or obstacles that need to be overcome.

Interactive Learning Media based on *Lectora Inspire* is expected to provide a more enjoyable and interesting learning experience for students. By using interactive elements such as water cycle process simulations, learning videos, and interactive quizzes. Researchers hope to encourage students to be more actively involved in science learning about the water cycle. The use of interactive media also provides opportunities to improve students' digital competence. Learn how to access, evaluate, and use new information effectively in a digital environment. In addition, interactive learning media can also improve collaboration and problem-solving skills which are important aspects of scientific literacy.

In the journal entitled "Development of Interactive Learning Media for the Subject of Application of Electronic Circuits for Class XI Based on *Lectora Inspire* at SMKN 1 Cikarang Selatan" which was studied by (Nova, 2023) it was proven that the

creation of interactive learning media based on *Lectora Inspire* was very effective in improving student learning outcomes. Therefore, the researcher wanted to implement this media for class V students at SDIT As Salam.

In the research that has been conducted, *Lectora Inspire media* has great potential to increase students' learning motivation compared to conventional learning (Nursidik & Suri, 2019). With the existence of *Lectora Inspire -based learning media* , it is hoped that students will get a clearer understanding related to the materials in the science subject on the water cycle material.

However, from several interactive media developments based on *Lectora Inspire* that have been conducted in previous studies, there are aspects that need to be further developed. Therefore, the author has an element of novelty in this study. Researchers use interactive learning media based on *Lectora Inspire* to improve scientific literacy in science learning of water cycle material for grade V Elementary Schools. Most existing researchers only focus on media development and improving student learning outcomes. In addition to the element of novelty in this study, namely by adding a focus on improving scientific literacy related to the science subject matter of grade V water cycle.

From the observation results found that there is still a low level of learning models and media that are varied and the lack of participation from grade V students. Researchers conducted interviews related to the understanding of SCIENCE, that there are still many who do not understand SCIENCE material and its relationship to real life, including, 1) Students are still lacking in process skills and assessing and making responsible decisions in everyday life. 2) Students are still lacking in the influence of SCIENCE and technology in everyday life.

METHOD

The research was conducted at SDIT As Salam located in Kp. Simpur RT.001/001, Ciantra, District. South Cikarang, Bekasi Regency, West Java. The selection of schools was based on information from teachers in the field as fellow researchers who had carried out teaching and learning activities at SDIT As Salam. The research time needed to conduct the research is predicted to be 4 months, namely from February to June 2024.

This researcher uses the development method or Research and Development (R&D). Development or Research and Development (R&D) according to Sugiyono (2015:407) in (Nursita, 2023) that R&D research is a research method used to produce certain products and to test the effectiveness of the product.

The product developed in this study is a digital-based interactive learning media *Lectora Inspire* . This media development research was carried out in accordance with the steps in the ADDIE development model. The ADDIE development model stands for *(Analysis, Design, Development or Production, Implementation or Delivery and Evaluations).* The ADDIE model concept is applied to build basic performance in learning, namely the concept of developing a learning media design (Hidayat & Nizar, 2021).

In this study, the data collection techniques used include observation, interviews, tests (unwritten tests in the form of questionnaires), written tests, and documentation.

The data analysis technique used in this study is qualitative analysis which consists of the data collection process (Data Collection), data reduction, data presentation and conclusions.

RESULTS AND DISCUSSION

Research findings

The results of this development research are products in the form of learning media based on the *Lectora Inspire application* to improve students' scientific literacy in science subjects in Elementary Schools.

Analysis of Validation Results of Interactive Learning Media Based on *Lectora Inspire*

Interactive learning media based on *Lectora Inspire* that has been developed is then validated by expert validators of media, materials and language. After research has been conducted by each validator, then analysis is carried out on the validation sheet by the three experts. So the results of the instrument validation obtained are the total average of all aspects of the study.

Table 1. Expert Assessment Results

Validator Name	Aspect Evaluation	Total Score	Presetage
Prof. Dr. Ginanjar Maulana, M.Pd	Curriculum	57	95%
	Contents		
	Language		
Ria Kurniasari, M.Pd	Visual Design	96	96%
	Media Characteristics		
	Use of Media		
Avini Martini, M.Pd	Eligibility Use of Language	38	76%
	Accuracy Use of Language		
	Accuracy of Writing Method		
Average		89%	

Based on expert assessments, interactive learning media based on *Lectora Inspire* to improve science literacy in science subjects for grade V of Elementary Schools obtained a valid value and met the level of feasibility and suitability. The level of validity if it meets the minimum criteria is 62.50%. Based on validation

from 3 validators, a value of 89% was obtained. So that interactive learning media based on *Lectora Inspire* to improve science literacy in science subjects for grade V of Elementary Schools is very valid and suitable for use .

Analysis of Learning Media Practicality Test Interactive Based on *Lector Inspire*

Practicality test was conducted on the *Lectora Inspire -based learning media* that had been developed. This practicality test was conducted to improve students' scientific literacy in using interactive media based on the *Lectora Inspire application* which was tested on students and teachers. This test was conducted directly in grade V of Elementary School and in the Computer Lab room. The practicality response questionnaire was printed and distributed to students and teachers to be filled in. After getting the results of the questionnaire from teachers and students, an analysis was carried out for the value of the teacher and student response questionnaire to the interactive learning media based on *Lectora Inspire* to improve scientific literacy as follows .

Table 2. Questionnaire Results Teacher Response

No	Aspect Evaluation	Total Score	Presentation	Category
1	Teacher Strategy	39	97%	Very Practical
2	Learning / content material			
3	Teaching materials			

Based on the table above, the total score for each questionnaire item is 39. Next, it is calculated to find out the percentage using the formula:

$$R = \frac{\sum x}{\sum i} x100\%$$

$$R = \frac{39}{40} x100\%$$

R = 97%

Based on the assessment of the results of the teacher response questionnaire on interactive learning media based on *Lectora Inspire* , a total score of 39 was obtained with a percentage of 97%, so it is categorized as "Very Practical". Furthermore, the results of the student response questionnaire can be seen in the following table:

Table 3. Questionnaire Results Students' Attitude Towards Learning Media Interactive Based on Lector Inspire

No	Student Name	Score	Percentage %	Category
1	Adrian Fadhil Pratama	37	92.5	Very Practical
2	Alvar Khansa Pratama	38	95	Very Practical
3	The Story of Angga Jaya Saputra	30	75	Enough Practical
4	Apricot Farhatunisa	40	100	Very Practical
5	Callysta Dean Az Zahra	37	92.5	Very Practical
6	Darell Risqullah	37	92.5	Very Practical
7	David Villa	40	100	Very Practical
8	Ihza Mahendra	36	90	Very Practical
9	Indri Yani	36	90	Very Practical
10	Khansa Nurul Husna	35	87.5	Very Practical
11	Laika May Ardina	31	77.5	Practical
12	M. Gabriel Nugraha	39	97.5	Very Practical
13	Muhammad Rayhan Ibn	30	75	Practical
14	Naila Thalita Ramadhania	39	97.5	Very Practical
15	Najwa Khairu Ainunnisa	30	75	Practical
16	Nova Tunjung Irawan	39	97.5	Very Practical
17	Raffa Hendayana Putra	40	100	Very Practical
18	The Will of Maulana	40	100	Very Practical
19	Sholeh Fauzi	39	97.5	Very Practical
20	Tiffania's daughter , Primayudi	37	92.5	Very Practical
21	Zalfa Naqiya	36	90	Very Practical
	Average	766	91.10%	Very Practical

Table 4. Teacher and Student Practicality

No	Respondents	Percentage Value
1	**Teacher**	**97%**
2	**Student**	**91.10%**
	Average	**94.5%**

From the table above, it can be concluded that interactive learning media based on *Lectora Inspire* is said to be practical and feasible if it meets the minimum criteria of 52%. Based on the average results of teacher and student responses, a value of 94.5 was obtained. So the development of interactive learning media based on *Lectora Inspire* to improve science literacy in grade V gets the criteria "Very Practical"

Understanding and Effectiveness Analysis

The results of the student test were conducted to test the students' abilities regarding scientific literacy. In carrying out measuring the effectiveness analysis, it was conducted on grade V students in class and in the Computer Lab, followed by 21 grade V students. The adaptation of the student effectiveness analysis is as follows:

Student Test Score Results

NO	STUDENT NAME	PRE TEST	POST TEST	Post - Pre	Maximum Score (100 - Pre)	N-Gain Score	N-Gain Score (%)
1	Adrian	55	84	29	45	0.64	64.44
2	Alvar	50	85	35	50	0.70	70.00
3	Angga	30	85	55	70	0.79	78.57
4	Apricot	50	88	38	50	0.76	76.00
5	Callysta	54	86	32	46	0.70	69.57
6	Darell	40	84	44	60	0.73	73.33
7	David	67	90	23	33	0.70	69.70
8	Ihza	49	78	29	51	0.57	56.86
9	Indri	64	88	24	36	0.67	66.67
10	Khansa	55	91	36	45	0.80	80.00
11	Laika	58	81	23	42	0.55	54.76
12	M. Gabriel	79	94	15	21	0.71	71.43
13	Rayhan	69	95	26	31	0.84	83.87
14	Naila	45	96	51	55	0.93	92.73
15	Najwa	50	95	45	50	0.90	90.00
16	New	78	88	10	22	0.45	45.45
17	Raffa	53	91	38	47	0.81	80.85
18	consent	61	89	28	39	0.72	71.79

19	Sholeh	74	93	19	26	0.73	73.08
20	Tiffany	80	95	15	20	0.75	75.00
21	Zalfa	60	81	21	40	0.53	52.50
	Total	58.14	88.43	30.29	41.86	0.71	71.27

The average value of the *pretest* and *posttest assessment results* is then processed to find the N-Gain. N-Gain analysis is used to determine the increase in score results before and after the use of interactive learning media based on *Lectora Inspire* in learning. The N - *Gain score* is the difference between the observation value of scientific literacy before using interactive learning media based on *Letora Inspire (pretest)* and science literacy scores after using interactive learning media based on *Lectora Inspire* in learning (*posttest)* on class V students at SDIT As Salam.

$$\text{N-Gain} = \frac{Skor\ Posstest - Skor\ Pretest}{Skor\ Ideal - Skor\ Pretest}$$

$$\text{N-Gain} = \frac{88 - 58}{100 - 58}$$

N- Gain = 0.71

Table 6 Criteria N-Gain Value Distribution

N-Gain Value	Category
g ≥ 0.7	g-Height
0.7 > g ≥ 0.3	g-Medium
g > 0.3	g- Low

Table 7. Categories Effectiveness of N-Gain

Presentation	Category
< 40	Ineffective
40 – 55	Less Effective
56 – 75	Enough Effective
>76	Effective

Processing results mark before and after treatment participant educate Class V SDIT As Salam in measurement effectiveness scientific literacy through analysis The N-Gain value produces score 0.71. Based on Table 4. Score results N-Gain value of 0.71 indicates " Sufficient " criteria Happen Improvement " before and after learning media

interactive based on *Lectora Inspire* is used in learning science subjects. And if the percentage of effectiveness gets a value of 71.27%, where based on Table 4. Score 71.27% shows that learning media interactive based on *Lectora Inspire* " Enough Effective in increase scientific literacy in participants educate Class V of SDIT AS Salam.

DISCUSSION

Learning Media Development Process Interactive Based on *Lector Inspire*

Types of research used in study This is *Research and Development* (R&D). While developed products in the form of learning media based on application *Lectora Inspire* which has objective For increase scientific literacy of participants educate Class V SDIT As Salam. And research development This using the ADDIE learning model with 5 stages , namely : (1) Analysis , (2) Product design , (3) Development , (4) Implementation products and, (5) Evaluation .

Study This based on with analysis acquisition needs the data from observation and interview . Observation and interview results known that No the existence of learning media used in learning that causes participant educate difficulty in understand material . Science learning is carried out only with use book lesson just as support learning . The lack of use of media in learning that is of a nature contextual causes participant educate difficulty understand material learning .

Based on results observation and interview , researcher develop learning media based on application *Lector Inspire* For increase scientific literacy . Instructional Media based on application *Lector Inspire* designed resemble appearance presentation and have animation as well as button that is pressed will There is an interesting transition , where every the button will access page material , questions evaluation , and also sources learning . Use learning media color this also uses bright colors and can make participant educate interested For exploring learning media based on application *Lector Inspire.*

Development of learning media *Lectroa Inspire* This has through stage refinement from results validation carried out by experts materials , media experts , and experts language . Validation carried out by experts material based on 2 aspects namely learning and content material . Validation results carried out by experts material get score 57 with 95% percentage which is the acquisition the show learning media based on application *Lectroa Inspire* including "very valid" category .

Next , validation carried out by media experts based on 2 aspects evaluation namely media appearance and support . Validation results media experts obtain score 96 with 96% percentage shows that learning media based on application *Lector Inspire* including in "very valid" category .

Meanwhile , validation is carried out by experts Language based on 5 aspects namely development students , readability , coherence , appropriateness rules language , and usage symbol . Validation results expert Language to obtain score 38 with 76% percentage shows that learning media based on application *Lector Inspire* including into the "valid" category.

Table 8 Summary of Expert Validation Results

Validators	Presentation	Criteria
Subject Matter Expert	95%	Very Valid
Media Expert	9 6%	Very Valid
Linguist	76%	Valid
Average	89%	
Criteria	Very Valid	

Based on the recapitulation of the validator research results above, it can be concluded that the learning media based on the *Lectora Inspire* application obtained an average of 89% with the criteria of "very valid". This can indicate that the learning media based on the *Lectora Inspire application* is very valid and very feasible to be used in science learning, especially water cycle material in grade V of Elementary School.

Teacher and Student Responses

Teacher response assessment was conducted by a fifth grade teacher of SDIT AS Salam. Teacher response assessment was conducted based on 3 aspects, namely material presentation, media presentation, and language. From the results of the teacher response assessment, a score of 39 was obtained with a percentage of 97.5%, which indicates that the teacher's response to the *Lectora Inspire application-based learning media* is in the "very practical" category. The student trial was conducted by fifth grade students of SDIT AS Salam. Student response assessment was conducted based on 3 aspects, namely clarity of media instructions, materials and teaching materials. From the results of the student response assessment, a score of 766 was obtained with a percentage of 91.1%, which indicates that the student's response to the Lectora *Inspire application-based learning media* is in the "very practical" category.

Effectiveness of Learning Media Based on *Lectora Inspire Application*

In the *pretest* and *posttest* conducted in class V of SDIT As Salam involving 21 students, based on the test results, the average pretest score was 58.14 and the average posttest score was 58.14. *posttest* 88.43. Average *pretest- posttest score* Then processed For reach N-Gain value . The result of N-Gain data processing is obtained score 0.71 which shows that existence improvement mark from before using media and after using learning media based on application *Lector Inspire* .

In the effectiveness test scientific literacy is carried out with questionnaire to participant educate Class V of SDIT AS Salam consisting of 21 students after using learning media based on application *Lectora Inspire* . Acquisition the average value generated from distribution questionnaire the is 91.1% where acquisition the including in category “ enough ” effective ”.

Improvement Science Literacy

The results of processing the average value of the data observation student science literacy before and after use student media class V SDIT As Salam through N-gain calculation yields score 0.71. Based on criteria The N-gain value of 0.71 indicates the occurrence of improvement student science literacy with " high " criteria at the moment before and after using learning media based on application *Lectora Inspires* students Class V of SDIT As Salam.

CONCLUSION

Based on the analysis of the results and discussion of the development research at SDIT As Salam on the Development of Interactive Learning Media Based on *Lectora Inspire* for Science Subjects to Improve Science Literacy for Class V SDIT As Salam. It can be concluded that based on the results of the development of the Interactive Learning Media developed, it was designed by utilizing *Lectora Inspire,* which was designed special For serve material water cycle interesting and interactive . This design notice need learning student class V with enter visual, audio and activity elements interactive that can help student understand the concept of the water cycle in depth. The validation results from three experts, namely media experts, language experts and material experts, aim to test the validity or feasibility of interactive learning media based on *Lectora Inspire* This . Presentation results media validation obtained 95% value . Percentage result validation expert material obtained value 96%. And the result presentation validation expert language acquired value of 76%. If accumulated results the value obtained in the validation process to obtain mark of 89% , which is valid and worthy of being tested. Development of interactive learning media based on *Lectora Inspire* which includes: there is animations , interesting learning materials and videos , so that can help participant educate to improve scientific literacy.

Based on the results of the practicality test by teachers and students totaling 21 students, the interactive learning media about the water cycle obtained a score of 97.5% from the teacher's response assessing that the learning media was very practical. And found a score of 91.1% from the results of the student responses assessing that the learning media was very practical . The results of measuring the effectiveness test of class V SDIT As Salam from the *pretest* and *posttest results* , have mark results that measure analysis effectiveness of 21 participants educate . From the results overall effectiveness test obtained value of 71.8% is categorized Enough effective .

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