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Development of Articulate Storyline of Human Respiratory System Materials in V-Class Students at Pati

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Abstract

The learning media in school affects less learning. That's why specialists promote stories that are interpreted by the media. In this review, the experts developed techniques that use innovative work (research and development) using the ADDIE model. Date collection techniques include observations, interviews, documentation, and lifting. Data analysis used is qualitative and quantitative data analysis (uji validasi dan uji angket respon siswa). Learning with software articulate storyline that got an average of 95.5% of the material expert validation test results and 95.2% of the media expert evaluation results with a very valid category. The analysis of the elevation needs of students obtained a presentation of 34.10% that students are still having difficulties in the subject of IPAS. The results of the validation of materials 1 and 2 in terms of material compatibility, language suitability, usability, and suitability with the pupils are very valid, so they can be used to structure the story line. We obtained a maximum r value of 0.998 > 0.349 and a rehabilitation test with a cronbac alpha value of 0,687 > 0.6, so the validity test results indicate that the data is valid. So that the Media Articulate Storyline can be used by teachers for innovative media.

Keywords: Articulate Storyline, Human Respiratory System, Learning Media

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INTRODUCTION

The rapid growth of science and technology has pushed education towards the era of the Industrial Revolution 5.0. To keep up with these developments, educators must innovate in learning. Students quickly get bored because most of the teachers are still delivering their matters through lecture methods. Senada with(Ardiyanti et al., 2021) that teachers quickly bored students, thus lowering their level of enthusiasm and commitment in the classroom. Besides, teachers still use simple media or just books, so it is difficult for students to understand the material being told. In addition, the delivery of teacher learning material has a significant impact on student learning performance (Sofina, 2020), (Cahyo Tris Diantoro et al., 2020).

The development of learning media is very needed in the era of the Merdeka curriculum, in which, in the learning activities, students are given the freedom to be creative and innovative. The purpose of this learning is to strengthen students' understanding of literacy and numeration, as well as to improve students' knowledge of each subject. There is an adaptation of topics in the free educational plan, one of which is in the subjects of

innate science and sociology. To further develop academic achievement and learning energy, home learning can be sustained by using instructional materials and learning media so that students are more dynamic in their learning. As the curriculum changes, the academic achievements and motivation of students increase. Using learning media for correspondence purposes to create material meaning and further develop learning skills. In addition to giving energy, the use of learning media increases the interest and support of students in the classroom, as well as their learning levels.

(Febrianti et al., 2021) The selection process is not easy, but the selection of the media should be done carefully, given that there are many types of learning media (Fardani et al., 2023). In developing learning media in the 5.0 era, teachers can use various technological innovations to help the learning process (Setiyana, 2023), (Siti Luthvita Dewi, 2020). Learning that utilizes technology is essential to be learned and developed by teachers and students (Hilyana et al., 2023). Interactive visual audio media is one of the learning media that can take advantage of technological advances. The use of interactive media ensures interesting learning and tests students' understanding (Ramadhani et al., 2023).

Interactive media is a learning program that allows users to actively interact with the program and learning goals by combining text, visual images, films, animations, and simulations using a computer or similar device (Zega et al., 2022). While technology-based media that combines two components, audio (voice) and visual (picture), are audiovisual media (Fadia Nurluthfiana et al., 2023). One of the varied media that can be used specifically by the media is the narrative in the evolving experience. In 2014, he created a comprehensible story program that consolidated characters living, glimmering, video, and sliding into one item (Pasa et al., 2023).

The findings from the observation results in Class V of SDN Pohgading district of Pati stated that teachers delivered learning materials through lecture methods, so students understood the materials taught. In the observation, it was found that there was a minimum of learning media in the classroom because of time constraints in creating learning media and teachers preferring the media around and the image media. Furthermore, analysis of student needs towards learning media showed the highest presentation on answers agreed with a score of 3 obtained a presentation of 34.10%, and the results of interviews conducted with students found that students still had difficulties on IPAS subjects and students were more happy to use the learning media that had its voice and images to learn.

Table 1: Results of elevating student needs for learning

No	Category	Total	Value Percentag
1	Agree	163	34,10 %
2	Very Agree	152	31,80 %
3	Disagree	95	19,88 %
4	Disagree	68	14,22 %

Source: Researchers

In line with the results of the study (Husna & Fajar, 2022) which show that the media-articulated storyline has a high degree of credibility and gets a positive response from students, The results of research by (Arman Cahyanto et al., 2022) stated that the E-module-assisted articulate storyline enabled the maker of learning material to make intuitive and drawing satisfied to help the excitement and energy understudies to learn. Modules assisted with clear stories have been highly appreciated, and the e-learning physics module, given that stories are well thought of as valid, valuable, and can be applied to sound wave learning, The results of this research are reinforced by research (Gede et al., 2022) showing that interactive multimedia-articulated storylines of plant body material and its functions are

considered valid and useful, thus suitable for use in fourth grade elementary school learning. It's built on an interesting narrative of the plant body and its functions. The novelty of previous research is that the researchers focused on the validity of the media-articulated storyline on the material of the human respiratory system in class V.

Learning issues in the V class of SDN Pohgading district of Pati above need a solution, and its solution is by creating a learning medium about IPAS subjects in which there is audio and visual. Thus, the development of a media-articulated storyline can be a solution to the problem. The material from the IPAS on the human respiratory system was used by researchers for this research and development. Finished determined to find out the legitimacy of the media-enunciated story material of the human respiratory framework in class V substudies of the SDN Pohgading area of Pati.

METHOD

The research was carried out in the Pohgading district of Pati. The research objects of the V-class students in the Pohgading SDN district of Pati in the strange semester of the 2023–2024 academic year. Research and Development, or simply RnD,, is the type of research used in this review. The stages in the innovative work process are taken from the ADDIE (Examination, Plan, Advancement, Execution, and Assessment) improvement model, according to (Rayanto, 2020). The Addie Advancement Model is one of the improvement models used to promote relevant learning media to explore (Nugraheni, 2018) The two types of information used in this innovative work are quantitative and subjective. to decide whether the created item is truly worthy of use or not. This research can start based on the problems that exist in Pohgading's SDN. The problem refers to something that has value if used. Here's the ADDIE development model:

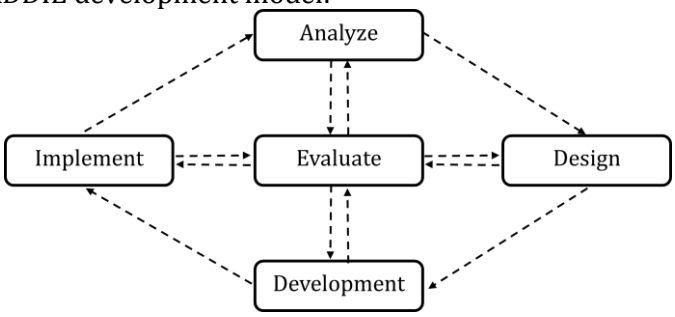

Figure 1: ADDIE Development Model Stage Source: (Sugihartini & Yudiana, 2018)

In this research, questionnaires, documentation, interviews, and observations are the methods used to gather data. Data gathering techniques are used to obtain information by looking at materials from books and journals, as well as previous theories and research related to this research and development. Next, the statistical tests used are validity tests and qualification tests.

The results of the initial observations are analyzed to determine which products will be of high quality and to meet the learning objectives. To design the learning media articulate, this process involves such steps as analyzing the problems that exist in SD Pohgading, designing the initial product that focuses on the concept of the product and the purpose of learning, designing the structure of the material, preparing the evaluation, making a flowchart, and making a storyboard. Then, the product is produced according to the storyboard that has been made before. Further, the validation (expert assessment) used includes 4 validators, with 2 master media learning validators and 2 master material validators. Each validator is approached to provide assessment, guidance, and contributions to the items that have been made. Next, the product will be revised according to the input of the validators and tested. The way to find the percentage of the subvariable is:

$$x_i = \frac{\sum s}{S_{max}} \; x \; 100 \; \%$$

Description:
x_i = percentage of eligibility
$\sum s$ $= Jumlah\ skortotal\ score$
S_{max} $= maximum\ score$

Table 2 Category Validation of Learning Materials

No	Presentase	Kategori
1	76 % < P ≤ 100%	Very valid
2	51 % < P ≤ 75%	Valid
3	26 % < P ≤ 50%	Less Valid
4	0 % < P ≤ 25%	invalid

Source: modified Wirdhaningrum, (2018)

Results and Discussion

This research was conducted to solve the formula of the problem of how the validity and validity of the media articulate the material storyline of the human respiratory system in the students of the V class of SDN Pohgading district of Pati. In this study, the data was obtained from the results of interviews, validations, and rafts (Hidayat et al., 2021). The results of the interviews were derived from teachers' interviews and student representative interviews. The most difficult subjects for students to understand are the natural and social sciences, especially material on the human respiratory system, which is mostly descriptive and slightly illustrative (Tessmer & Richey, 1997). Students also stated that they liked to use learning media to learn, although some of them admitted it was difficult to record important information in the media (Pasa et al., 2023). Therefore, in order to facilitate students in highlighting important points in the media, researchers are interested in conducting research and developing media that include graphics, audio, video, and summaries of content (Luthvita et al., 2023). The researchers developed media with software-articulated storylines, according to Set (Setyaningsih et al., 2020), (Lestari et al., 2022) Articulate Storyline is a software designed to help educators in today's era of digital technology. This software can be used by anyone, from beginners to professionals, to make media more interactive. The following is the development of the human respiratory system:

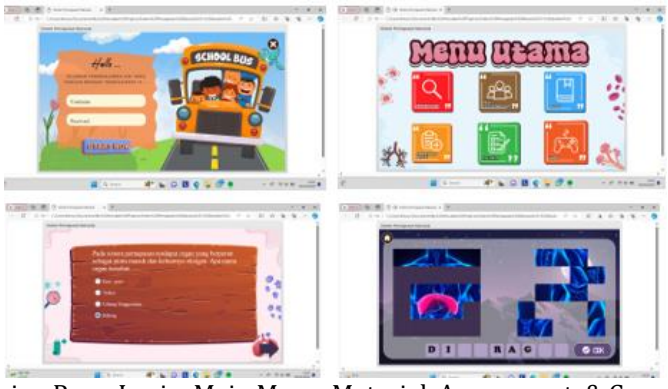

Figure 2: Opening Page, Login, Main Menu, Material, Assessment, & Game Page

To determine whether the media is worthy of use or not, the media's storyline is first validated. Validation is used to determine the level of validity of the media so that it can be tested on students (Elmabaredy et al., 2020). Four validators consist of two material experts and two media experts. A material expert validator can provide input or suggestions

for improvement on matters of material suitability, language compatibility, usability, and suitability with learners (Hamilton et al., 2019), While media experts can provide insights and suggestions on improvements in aspects of software engineering, ease of use of media, visual communication, and user interface layout. Unlike the research (Sriani et al., 2023), (Supriyono, 2022) the multimedia validity of learning is obtained from: multimedia validation, effectiveness, and multimedia practicality. The entries and suggestions for improvements from the four validators are shown in the table below:

Tabel 3 Inputs and Recommendations for Correction of the Four Validators

No	Validator	Suggestions and Repair Inputs	Action Impetus Repair
1	Material Expert Validator 1	No materials, examples, and evaluations for the 4th learning objective,	add Adding materials, examples, and assessments related to the 4th learning objective to the developed media
2	Material Expert Validator 2	Continue	-
3	Media expert validator 1	Created APK format or online search domain and free hesting can	convert media results articulate storyline (html) to apk format
4	Media expert validator 2	Learning objectives in alignment with ABCD (audience, behavior, condition, and degree) Assessment matters	tailored to learning goals Adjusting learning objectives to the ABCD (audience, behavior, condition, and degree) and tailoring matters to learning purposes

Source: Researchers

The resulting story articulation media requires validation from both material experts and media. The validation test results produced by material validators 1 and 2 are summarized as follows:

Tabel 4 Summary of the Results of the Validation Tests of Materials 1 and 2

Score Aspects	Score (%) V1	Score (%) V1	Average Score Per Aspect	Validation Category
Material compatibility	81	100	90,5	Very Valid
Language compatibility	100	94	97	Very Valid
Usability	94	94	94	Very Valid
Compatibility with Graduate Participants	94	94	94	Very Valid
Acquisition Score (%)	92,25	95,5		Very Valid
Average validity score	95,5			

Source: Researchers

Table 3 presents a summary of the findings of the validation tests by Materials 1 and 2 experts. The average validity score of the expert was 95.5%, making it into the validity group "Very Valid." A percentage of 81% was given to the results of the validation test of the material expert 1 language qualification, which has an excellent validity classification. In terms of language compatibility, we obtained a percentage score of 100% with a very valid validity category, a score of 94% for the usefulness aspect, and compatibility with the student obtaining a presentation with a highly valid validity category (Yamani, 2021). Validator expert material 1 provides input and suggestions for improvement, i.e., there is

no material, examples, or evaluations for the purpose of learning 4. The researchers follow up on the suggestions for improvement by adding material, suggestions, and assessments related to the goal of learning 4 (Cahyanto & Lesmono, 2022). The results of the material 2 validation test on the material compatibility aspects obtained a 100% presentation with a very valid category (Widyaningrum et al., 2022).). In terms of language suitability, usability, and suitability aspects, students obtained a 94% presentation with a very valid validity category. There was no input or suggestions for improvement from Material Validator 2 (Hassan & Abu, 2019). From both materials, validators can be seen in Table 3, which obtained an average presentation score of 90.5% on matters of maturity, 97% on language maturity presentation, and 94% on maturity and maturity with pupils (Husna & Fajar, 2022). The average of both materials validators received the validation category "Very Valid." So that the material in the media can be tested on the students. The results of the validation test of material 1 and material 2 validate the material, the language, the usability, and the compatibility with the students, which are very valid so that they can be used to articulate the storyline. Relevant with (Zega et al., 2022), (Effendi & Padang, 2019) and (Vol, 2022) the score on content validity aspects, substantive accuracy, conceptual breadth, and presentation was 56 on the first revision with a decent percentage of 80%, and 70 on the second review with a percentage of very 100% matching the corresponding criteria.

Table 5 Summary of Validation Results of Media Expert 1 and Media Expert

Score Aspects	Score (%) V1	Score (%) V1	Average Score Per Aspect	Validation Category
Software Engineering	100	100	100	Very Valid
Media Usability	94	87	90,5	Very Valid
Visual Communication	100	94	97	Very Valid
Layout User interface	100	87	93,5	Very Valid
Acquisition Score	98,5	92		Very Valid
Average validity score	95,25			

Source: Researchers

Table 4 shows the final percentage for each category of two media expert validators. Media Expert Validator 1 scores 100% with the validity category "Very Valid" on software engineering, visual communications, and user interface layout aspects. Is gaining a 94% percentage score with a highly valid category for ease of use (Septiana et al., 2022). Media expert validator 1 gives input and suggestions for improvements to the media, i.e. media made in APK format or online search domains, an, the researchers followed i.e., the suggestions of the improvement by media articukate storyline (html) to APK format. While media expert validator 2 obtained a presentation score of 100% on the aspects of software engineeringfollow 87% on the aspect of ease of use of media (Drama & Ability, 2022). In the aspect of visual up on for a presentation score of converting the and in the layout of the user and obtains a presentation rating of 92%communication, it obtains of the four aspects evaluated by the media 87%, interface, it 2 . a validation category of "Very OutWhereas the results of the test of media expert expert, Validator in the obtained of software Valid." 2, a presentation of 100%i.e., presentation aspectsse% on the designmedia. tained of and a of 90 (Nur & Pujianto, 2017). The four factors assessed by the first and second media expert validators were categorized as having excellent validity. In the highly valid category, the average validity score of both media experts was 95.25%. According to (Arman Cahyanto et al., 2022), (Miu et al., 2018), (Sriani et al., 2023), (Artikel, 2020) and Article 2020, the final average falls into the category "very valid" with a percentage of 85.78% and a final average of 4.3.

Table 6 Summary of Validity Results of Material and Media

Validity	Rata-rata Skor Perolehan (%)	Kategori Kevalidan
Material expert	95,5	Very Valid
Material expert	95,25	Very Valid
Average	95,375	Very Valid

Source: Researchers

Average 95.375 Very valid Source: Researchers The average score obtained from all validators of material experts and media experts was 95.37% in the same category. According to the recapitulation of the validation test results of these experts on the media, the articulate storyline of the human respiratory system material of students of class V SDN Pohgading, district of Pati, is declared valid so that the media can be tested on students of class V. To determine the validity of the media, a test was carried out. Students are given a response to the media's articulate storyline to determine its validity (Yuniari & Juliari, 2021). After the data from the elevator student response is obtained, it is then analyzed to see the weight of the validity of the media. Here are the results of the validity test analysis obtained from the elevator student response to the learning media. Referring to (Nur & Pujianto, 2017), (Wati & Nugraha, 2021) using the standard deviation (SBi) score conversion, the findings of the learning media validation based on software articulate storyline 3 yielded an average score of 3.6 and ranked very well.

Tabel 7 Validity Test Results Angket Student Response

Correlations

x1	x2	x3	x4	Jumlah
1	.908	.845	.856	.861
	.000	.000	.000	.000
31	31	31	31	31
.908	1	.936	.941	.948
.000		.000	.000	.000
31	31	31	31	31
.845	.936	1	.979	.990
.000	.000		.000	.000
31	31	31	31	31
.856	.94	.979	1	.998
.000	.000	.000		.000
31	31	31	31	31
.86	.948	.990	.998	1
.000	.000	.000	.000	
31	31	31	31	31

Correlation is significant at the 0.01 level (2-tailed).

Source: Researchers

The validity or suitability of the lift or lift used by the researcher for the respondent is determined by the validity test findings based on Table 6. Contracting the r value of the count with the r of the structure of the table gives a reason for the Pearson legitimacy test. If the r value counts > r Table, it is stated "substantial," and assuming r counts < r Table, it's declared invalid. In searching for a r value from a table with N = 30 at a large 5% on the circulation of r values, the measurable table is 0.349. Then we obtain the value of r from the table at x1 = 0.861 > 0.349, x2 = 0.948 > 0.349, x3 = 0,990 > 0.349, and x4 = 0.998 > 0.349, so that the validation test results show that the information is valid. To look at a big value (Sig), that is, if a critical value < 0.05, it is stated as valid, and assuming a large value > 0.05,

it is declared non-substantial. Seeing from table 6, the sig x1 to x4 values obtained a value of 0.00, then the significant test of the data is declared valid since the sig value of x1 0.00 < is then stated as valid. Relevant to research (Drama & Ability, 2022), (Yaumi, 2017) bahwa jumlah t hitung > 0.05 (0.172>0.05). the total t counts > 0.05 (0.172>0.05). Then the reliability test is used to evaluate whether it remains consistent when repeated. If the Cronbach alpha value of a questionnaire is > 0.6, then it is considered valid.

Tabel 8 Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.687	4

Researchers From table 7 data, the Cronbach's alpha value is 0.687. A questionnaire or lift is said to be reliable if the cronbac alpha value is 0.687 > 0.6. Then the reliability test is declared valid. Relevant to (Gede et al., 2022) and (Gimin et al., 2023) the elevator reliability test student response obtained a presentation of 0.86, or 86%, with a very good category

Analysis of the elevation needs of students obtained a presentation of 34.10% that students still have difficulties on IPAS subjects. The results of the validation test of material experts 1 and material experts 2 on the maturity of materials, language maturity, usefulness, and maturity with pupils are valid so that they can be used to articulate the storyline. We obtained table r values at x1 = 0.861 > 0.349, x2 = 0.948 > 0.349, x3 = 0,990 > 0,349, x4 = 0.998 > 0.0349, and rehabilitation tests with cronbac alpha values of 0.687 > 0.6, so the validity test results show that the data is valid. So that the Media Articulate Storyline can be used by teachers for innovative media.

The contribution in this research will give teachers innovation in learning so that students do not get bored easily in class because in learning, besides studying material and asking answers, children feel like playing using this media-articulated storyline

CONCLUSION

Given the conversations of the past and the outcome, it tends to be assumed that experts consider media classification really practical, with an average rate of 95.37% of all master material and master media validators using articular storyline media that have been tried into their minds. Approval tests by material specialists and media specialists. Directed by analysts. So that teachers can implement the use of faster story stream media on students of class V in Pohgading district of Pati SDN. The media introduction of the expressive storyline showed a positive outcome. At this stage of the implementation cycle for students, this medium can help them to advance creatively and imaginatively and become a learning technique that is enjoyable, encouraging, and not exhausting. This finding should be seen from a survey of students' reactions to language suitability, image suitability, media impact, and appearance suitability in general, where the evaluation of dependency measurements showed a Cronbac alpha value of 0.687, and that means a stable quality test is crucial because the Cronbac alfa value is 0.687 > 0.6.

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