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DECILIFE: Development of Learning Media Based on Articulate Storyline 3 to Support the Learning Motivation of Junior High School Students

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Abstarct. *The low motivation to learn mathematics among 7th-grade junior high school students is often triggered by difficulties in understanding abstract material, such as decimal numbers, due to the limited use of interactive learning media. This research aims to describe the process of developing interactive learning media based on Articulate Storyline 3 on decimal number material to support the learning motivation of 7th-grade junior high school students. The research method used is Research and Development (R&D) with the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). Research data were obtained from expert validation sheets for media and materials, teacher and student response questionnaires, as well as student learning motivation questionnaires based on the ARCS model. The results of this study show that the DECILIFE media achieved a validity percentage of 88% with the category "Very Valid." The practicality test reached a percentage of 79.68% with the category "Practical" based on the responses of teachers and students after using the DECILIFE media. Meanwhile, the effectiveness test showed a percentage of 83.08% with the criteria "Very Effective" in supporting the mathematics learning motivation of junior high school students. Thus, the DECILIFE media is proven to be valid, practical, and effective as an interactive mathematics learning support tool and capable of encouraging students to actively engage in the exploration of mathematical concepts.*

Keywords: *DECILIFE, Interactive Media, Learning Motivation*

INTRODUCTION

Mathematics learning at the junior high school level requires students to master concepts well as a bridge from concrete elementary school material to more abstract material, including decimal numbers. Decimal numbers play many roles in everyday life, such as currency values, measurement results, and other quantitative data (Sinaga et al., 2025). However, the reality on the ground shows that there are still students who have difficulty understanding the concept of place value and comparing decimal numbers. This condition is caused by the low motivation of students to ask questions and actively participate in learning (Ningsih et al., 2026).

This is also discussed in the research by Rahmawati et al. (2026), which states that students are conceptually weak in place value, especially when comparing decimal numbers or performing basic arithmetic operations (addition, subtraction, multiplication, and division).

Theoretically, the barriers to understanding this abstract concept are closely related to students' cognitive learning outcomes, which are still in a transitional phase of intellectual development. Meanwhile, the ability to connect concepts, symbols, and mathematical representations is crucial for providing deep understanding and long-lasting abilities for students (Zainudin et al., 2021). According to the cognitive development theory proposed by Jean Piaget, students at the junior high school level (around 12–15 years old) undergo a transition from the concrete operational stage to the formal operational stage (Mulya et al., 2025). At this stage, students are required to think logically using abstract symbols and solve problems without physical objects in front of them (Indah & Fadiana, 2021; Susanto & Wulandari, 2024). However, because this is a transitional phase, there are junior high school students who still need visual bridges to understand abstract materials such as these decimal numbers. Students' failure to visualize this abstract concept often leads to anxiety, which can negatively impact their motivation to learn in the classroom (Marbun et al., 2025).

In addition to cognitive aspects, learning motivation also plays a role in encouraging students to be active during learning activities. Students' learning motivation can be shaped and enhanced through the ARCS model (Attention, Relevance, Confidence, Satisfaction) developed by John M. Keller (Nissa et al., 2021). The ARCS motivation model is a problem-solving-based framework designed to develop motivational strategies and create a conducive learning climate, thus fostering and maintaining active student engagement during learning (Sari & Rahmi, 2023). Therefore, there is a need for a learning medium that can not only help them visualize abstract concepts in concrete and dynamic representations but also provide an interactive learning experience to stimulate and sustain students' learning motivation.

Learning media is a tool and material used to support the achievement of

learning objectives (Ali et al., 2024). Learning media can take the form of textbooks, audio, video, images, or through computers. Along with the development of technology and information, learning media also undergoes renewal from static forms to more dynamic and responsive ones. One of the most significant innovations is interactive learning media. Interactive learning media is a type of learning media that utilizes technology to assist students in learning independently anywhere and anytime (Saadah, & Budiman, 2022). Through the use of interactive learning media, students do not just watch or listen, but also manipulate objects, make decisions, and receive immediate feedback (Listiani et al, 2024; Putra et al., 2024). Interactive learning media supported by intuitive interface design, easy-to-use navigation, and responsive feedback has been proven to enhance the learning experience, active engagement, and students' understanding of mathematics (Utami et al., 2024; Anwar et al., 2025).

Nevertheless, the availability of interactive learning media in one of the junior high schools in Malang City is still relatively low. Based on interviews with one mathematics teacher, information was obtained that seventh-grade students who had just entered junior high school for about a month tend to be passive and have low motivation to learn during learning activities. This is due to their adaptation to the learning environment at the junior high school level. In addition, the limited availability of interactive learning media in schools results in the delivery of material still being conventional, using printed books and blackboards, causing students to quickly become bored and less enthusiastic about learning. The limited time and teachers' skills in designing digital learning media mean that the potential of digital devices (smartphones) owned by students has not been utilized optimally. Most existing digital media are still limited to passive slide presentations that do not facilitate direct interaction or integrated concept simulation. Therefore, Articulate Storyline 3 comes as an easy-to-use solution to create interactive learning media for students.

Articulate Storyline 3 is software that functions as presentation media (Nurmala et al., 2021; Neliati, 2022). In Articulate Storyline 3, there are various features that can be used simply, such as triggers, variables, layers, and interactive

quizzes. In addition, Articulate Storyline 3 also supports HTML5 format, which allows students to access it independently via PC/laptop or personal smartphones. By utilizing the features that are already available and easy to access, the researcher plans to develop interactive learning media based on Articulate Storyline 3 named DECILIFE (Decimal in Life).

The urgent need for digital learning resources is the basis for the development of this media. This digital learning resource must help students understand the abstract concept of decimals and facilitate their effective use of gadgets. The novelty of this media lies in the presentation of four sub-materials (reading and writing, comparing, arithmetic operations, and problem-solving) packaged based on the relevance to everyday life and integrated with the transition from the concrete operational stage to the formal stage. In addition, this media is also equipped with interactive quizzes designed by applying the four elements of the ARCS motivation model. Therefore, this research aims to describe the process of developing interactive learning media based on Articulate Storyline 3 on decimal number material to support the learning motivation of seventh-grade junior high school students.

RESEARCH METHOD

This study employed the Research and Development (R&D) method using the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model was selected because it provides a systematic approach to educational product development, beginning with the identification of learning needs and continuing through product design, development, implementation, and evaluation. The model also allows researchers to review and revise the product at different stages based on evaluation findings. This flexibility is particularly relevant to the present study, as the development process requires adjustments to ensure that the product meets the identified learning needs. The stages of the ADDIE model and the corresponding activities are presented in Table 1.

Table 1. Research Stages with the ADDIE Model

Stages	Main Activities	Products Produced
Analysis	Analyzing student needs, curriculum analysis, and analyzing student learning motivation.	Results of needs analysis and specifications of the initial product.
Design	Developing learning designs, designing learning media, and preparing assessment instruments.	Teaching modules, designs or prototypes of media, and evaluation instruments.
Development	Developing interactive learning media and conducting expert validation.	Media results from validation.
Implementation	Conducting trials to measure the practicality and effectiveness of the media.	Data on the practicality and effectiveness of the media.
Evaluation	Formative and summative evaluations for product improvement.	Media that is feasible, practical, and effective.

This research was conducted at one of the junior high schools in Malang City during August 2026. This trial involved 28 students from class VII-D as subjects for product implementation, as well as three experts as validators (one media expert, one material expert, and one mathematics teacher as a practitioner). Qualitative data were analyzed descriptively through the stages of data reduction, data presentation, and conclusion drawing. In addition, quantitative data were analyzed using descriptive statistics in the form of percentage calculations to measure the validity of the media by expert validators, the practicality of media usage by teachers and students, and the level of media effectiveness measured from student learning motivation after using the media.

Validity Test

The developed learning media will be tested for its validity by validators. To measure the level of product validity, the feasibility of the media is assessed using a 5-point Likert scale questionnaire. The criteria for the Likert scale for the validation questionnaire are presented in Table 2 below.

Table 2. Likert Scale for Validation Questionnaire

Assessment	Score
Strongly Disagree	1
Disagree	2
Moderately Agree	3
Agree	4
Strongly Agree	5

After collecting the assessment data from media experts and material experts, the total scores from each validator will be processed to calculate the percentage of media validity. This calculation is performed by comparing the total score with the ideal maximum score. The validity level of the DECILIFE media can be calculated using the following mathematical formula.

$$V = \frac{\sum x}{\sum x_i} \times 100\%$$

Description:
V is the percentage of validators responses.
$\sum x$ is the total score of respondents.
$\sum x_i$ is the total maximum score.

Furthermore, the percentage of validity obtained from this formula is entered into the product validity criteria. Before conducting trials, the researcher uses a qualitative scale to assess the feasibility of the DECILIFE media. The data interpretation guidelines used to categorize the validity criteria of this media are presented in Table 3 below.

Table 3. DECILIFE Media Validity Criteria

Interval	Criteria
$0\% \leq V \leq 20\%$	Very Invalid
$20\% < V \leq 40\%$	Invalid
$40\% < V \leq 60\%$	Moderately Valid
$60\% < V \leq 80\%$	Valid
$80\% < V \leq 100\%$	Very Valid

(Gulo & Harefa, 2022)

DECILIFE media is considered **valid** if the percentage $V > 60\%$.

Practicality Test

Data on the practicality of the media is obtained through the completion of response questionnaires by students and teachers after using DECILIFE media. The formulation of statement items considers two instrument criteria: positive statements (supportive) and negative statements (containing obstacles or barriers to test the accuracy of the respondents). The scoring guidelines for the DECILIFE media validation use a 5-point Likert scale, with the following provisions.

Table 4. Likert Scale for Student and Teacher Response Questionnaire

Assessment	Score (+)	Score (-)
Strongly Disagree	1	5
Disagree	2	4
Moderately Agree	3	3
Agree	4	2
Strongly Agree	5	1

The practicality data obtained from the questionnaire responses by students and teachers will then be processed quantitatively. To determine the percentage of media practicality, the total score of respondents is compared with the maximum ideal score. The practicality level of DECILIFE media can be calculated using the following mathematical formula:

$$P = \frac{\sum x}{\sum x_i} \times 100\%$$

Description:

P is the percentage of student or teacher responses.

$\sum x$ is the total score of respondents.

$\sum x_i$ is the total maximum score.

Furthermore, the percentage obtained from this calculation is adjusted according to the criteria for product practicality. This qualitative assessment is used to determine how easy and efficient DECILIFE media is when used in the learning process. The practicality categories of DECILIFE media are determined based on the criteria presented in Table 5 below.

Table 5. Criteria for the Practicality of DECILIFE Media

Interval	Criteria
$0\% \leq P \leq 20\%$	Very Impractical
$20\% < P \leq 40\%$	Impractical
$40\% < P \leq 60\%$	Moderately Practical
$60\% < P \leq 80\%$	Practical
$80\% < P \leq 100\%$	Very Practical

(Gulo & Harefa, 2022)

DECILIFE media is considered **practical** if the percentage $P > 60\%$.

Effectiveness Test

The effectiveness of DECILIFE media is measured based on the results of students' learning motivation after using the media in learning. The instrument for student learning motivation is based on the ARCS Motivation Model by John M. Keller, which includes four main elements (Attention, Relevance, Confidence, Satisfaction). This instrument is structured using a 5-point Likert scale, with score weighting based on the nature of the statement items (positive and negative) presented in Table 6 below.

Table 6. Likert Scale of Student Learning Motivation Questionnaire

Assessment	Score (+)	Score (-)
Strongly Disagree	1	5
Disagree	2	4
Moderately Agree	3	3
Agree	4	2
Strongly Agree	5	1

Subsequently, the student learning motivation data from the motivation questionnaire, integrated with the ARCS model, is processed quantitatively. This processing is done by comparing the total score of student responses with the maximum ideal score to determine the percentage of media effectiveness. To find out how effective DECILIFE media is in enhancing learning motivation, the following formula is used:

$$E = \frac{\sum x}{\sum x_i} \times 100\%$$

Description:

E is the percentage of student responses.

$\sum x$ is the total score of respondents.

$\sum x_i$ is the total maximum score.

Then, to determine the criteria for media effectiveness, the percentage results from the calculation of student learning motivation are converted into a qualitative scale. The purpose of this assessment is to determine the extent to which DECILIFE media can achieve the expected effectiveness indicators. The results of the percentage calculation of student learning motivation are then categorized according to the effectiveness criteria in Table 7 below.

Table 7. Criteria for the Effectiveness of DECILIFE Media

Interval	Criteria
$0\% \leq E \leq 20\%$	Very Ineffective
$20\% < E \leq 40\%$	Ineffective
$40\% < E \leq 60\%$	Moderately Effective
$60\% < E \leq 80\%$	Effective
$80\% < E \leq 100\%$	Very Effective

(Fitria et al., 2023)

DECILIFE media is considered **effective** if the percentage $E > 60\%$.

RESULTS AND DISCUSSION

The development of DECILIFE media is conducted systematically through five stages of the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). Each stage is designed to assist students' cognitive transition and create a motivating learning environment. The detailed procedures for developing DECILIFE media using the ADDIE model are presented as follows.

Analysis

Based on the needs analysis results, the findings align with Piaget's cognitive development theory, which states that middle school students are in a transitional

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phase from the concrete operational stage to the formal operational stage. At this transitional stage, students must be able to use abstract symbols to think logically, such as understanding the concept of decimal numbers, but they still heavily rely on visual aids (Susanto & Wulandari, 2024). On the contrary, initial analysis shows that conventional learning does not meet the needs for student attention and material relevance, as formulated in Keller's ARCS motivation framework. Therefore, the developed media must be able to stimulate students' curiosity from the beginning of the learning process and offer an interactive visualization bridge (Utami et al., 2026).

Design

After generating the initial product specifications, the researcher then proceeds to compile the learning design, the design of the learning media, and to prepare the assessment instruments. The learning design is manifested in the form of teaching modules that include learning objectives, time allocation, and learning steps adjusted to the use of DECILIFE media. The preparation of the learning media design is carried out by creating screen displays, layout of navigation buttons and images, as well as the flow of interactive mathematics material. The initial design of DECILIFE media can be seen in the following images 1–6.

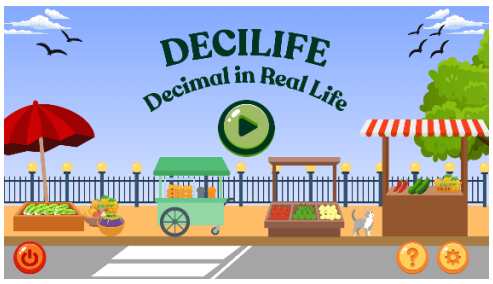


Image 1. Cover Display



Image 2. Menu Display

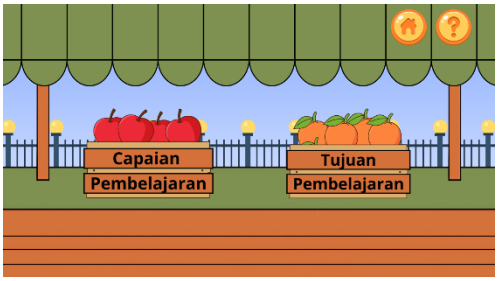


Image 3. Competency Display



Image 4. Interactive Material Display

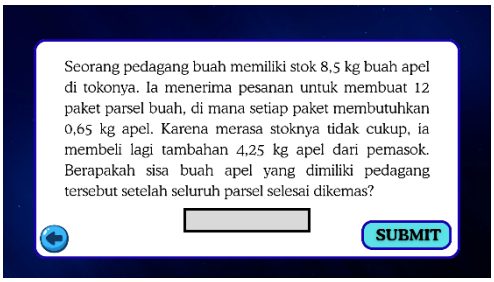


Image 5. Quiz Display



Image 6. Developer Display

The design of visual media is tailored to Piaget's concrete operational stage through the use of digital manipulative objects. This is in line with the research by Altiparmak & Ercan (2025), which reveals that learning using virtual manipulatives and real-life examples has a positive impact on students in enhancing their learning motivation. Additionally, the media flow structure and the design of interactive quizzes adopt the dimensions of Attention (the selection of colors and engaging illustrations) and Relevance (incorporating everyday life contexts), as applied in the development of interactive visual media by Utami et al. (2023). The dimensions of Confidence and Satisfaction are incorporated through varying levels of question difficulty and immediate feedback provided to students as they answer the questions. The result of this design phase is a prototype of the DECILIFE media ready to be developed in the next stage.

Development

After producing a prototype of the DECILIFE media, the researchers then developed the prototype using Articulate Storyline 3 software. At this stage, all elements (images, text, audio, and animations) began to be integrated into the Articulate Storyline 3 software until a complete and test-ready learning media was produced. After the DECILIFE media was fully developed, the researchers conducted validation with two expert validators to test its feasibility. The results of the feasibility test from the two validators can be seen in the following table 8.

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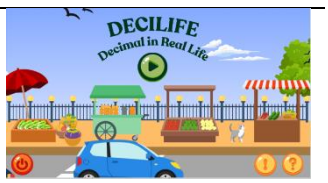
Tabel 8. Hasil Uji Kelayakan Media DECILIFE

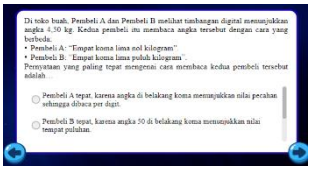
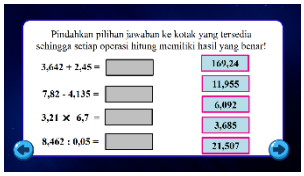
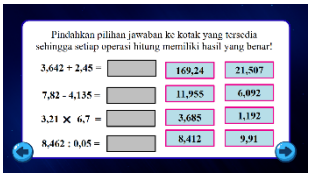
No	Validator	Assessment Aspects	Percentage	Category
1	Validator 1	Material Aspect	92%	Very Valid
		Media Aspect	94%	Very Valid
2	Validator 2	Material Aspect	80%	Valid
		Media Aspect	86%	Very Valid
	Average		88%	Very Valid

Based on the validation results in table 8, the material aspect received an average percentage of 86% and the media aspect received an average percentage of 90%. Overall, the validation results from the two validators obtained a percentage of 88% with the criteria of 'Very Valid'. This high level of media validity is due to the use of concrete visualization to support students' formal thinking transitions (Tarigan, 2026). In addition, a variety of interactive quizzes and engaging content presentation are designed to foster students' confidence in solving decimal problems.

In addition to providing quantitative assessments, both validators also provided qualitative assessments through critiques and suggestions for improvements. A recap of the critiques and suggestions, as well as the media display before and after revisions, is presented in the following table 9.

Table 9. Validator Improvement Suggestions and DECILIFE Media Revision Results

No	Improvement Suggestions	Before Revision	After Revision
1	The developer button is placed on the initial page.		
2	Add the supervising lecturer and remove the WhatsApp number on the developer page.		

3	Quiz questions could be enriched and made more varied in difficulty levels.		
4	For incorrect student answers, a mark could be given (e.g., in red).		
5	Quiz questions with a drag and drop type, the answer options could be increased.		
6	Decimal notation should preferably use a comma (,).		

After receiving improvement suggestions from both validators, the researchers then revised the DECILIFE media. Adjustments to navigation buttons and enhancements to material visualization were made to achieve media results that are not only academically valid but also capable of attracting students' attention to use it. This aligns with the findings of Wahyuni (2026) which state that ease of navigation can assist students in accessing media smoothly. Feedback features in the form of correct or incorrect answers and variations in question difficulty levels were added to strengthen the dimensions of Confidence and Satisfaction. This aligns with the findings of Rodjanatham & Badir (2025) that when students are in a digital environment that provides immediate feedback and tasks with progressively challenging levels, they will achieve a high level of motivation and engagement. After all improvements were completed, the revised DECILIFE media was declared valid and ready for trial.

Implementation

After the DECILIFE media was declared valid and refined, the researchers conducted a trial to determine how practical and effective the media is in supporting

students' learning motivation. The trial was conducted at a junior high school in Malang City involving 28 seventh-grade students and a mathematics teacher. Learning was carried out by applying a teaching module that integrated DECILIFE media.

1. **Results of Practicality Test**

The results of the practicality test of DECILIFE media were assessed based on the responses from students and teachers after operating the media in the learning process. Practicality as perceived by students was measured based on aspects of attractiveness, ease of use, and usefulness. Meanwhile, practicality as perceived by teachers included material relevance, ease of use, and usefulness. The results of the practicality questionnaire filled out by students and teachers are presented in Table 10 below.

Table 10. Results of Practicality Test of DECILIFE Media

Respondent	Assessment Aspects	Total Score	Maximum Score	Percentage	Category
Students	Display	455	560	81.25%	Very Practical
	Ease of Use	449	560	80.18%	Practical
	Usefulness	542	700	77.43%	Practical
Average Student Respondent		1446	1820	79.45%	Practical
Teacher	Clarity of Material	18	20	90%	Very Practical
	Ease of Use	25	30	83.33%	Very Practical
	Usefulness	25	30	83.33%	Very Practical
Average Teacher Respondent		68	80	85%	Very Practical
Combined Average		1514	1900	79.68%	Practical

Based on the results of the practicality test in Table 10, DECILIFE media received positive responses from both groups of respondents. The assessment from the students reached an average percentage of 79.45% with the category of "Practical." The display was the aspect with the highest rating from students, at 81.25% with the category of "Very Practical." On the teacher's side, all aspects received the category of "Very Practical" with the highest percentage in the aspect

of material clarity (90%), resulting in an average of 85%. Overall, the combined score from both respondents yielded a combined average of 79.68% with the category of "Practical."

The results of this study indicate that most teachers and students have a good ability to operate the media. However, some students need time to get used to the visual navigation when learning decimal material independently. Although the usefulness aspect received the lowest percentage among students, the interactive visual presentation in the media was considered quite helpful for students to understand the abstract decimal material, in accordance with Piaget's cognitive transition (Susanto & Wulandari, 2024). Thus, DECILIFE media has proven beneficial in helping students understand mathematical concepts and assisting teachers in managing classroom learning.

2. **Results of Effectiveness Test**

The results of the effectiveness test of DECILIFE media were assessed based on the filling out of the student learning motivation questionnaire integrated with the ARCS model (Attention, Relevance, Confidence, and Satisfaction). The student learning motivation questionnaire was administered after they completed the learning process. The results of the student learning motivation questionnaire are presented in Table 11 below.

Table 11. Results of Effectiveness Test of DECILIFE Media

No	ARCS Dimension	Total Score	Maximum Score	Percentage	Category
1	*Attention*	472	560	84.29%	Very Effective
2	*Relevance*	461	560	82.32%	Very Effective
3	*Confidence*	447	560	79.82%	Effective
4	*Satisfaction*	481	560	85.90%	Very Effective
	Average	1861	2240	83.08%	Very Effective

Based on the effectiveness test results in table 11, the DECILIFE media overall achieved an average percentage of 83.08% with the category of "Very Effective". This result indicates that DECILIFE media is capable of optimally

supporting students' motivation to learn mathematics through fulfilling all dimensions of the ARCS model. Specifically, the Satisfaction dimension has the highest average percentage (85.90%) compared to other dimensions. This is due to the direct feedback provided when students answer questions through the interactive media. This finding is consistent with the research by Yulianto et al. (2024) which states that this interactive feature gives students the opportunity to actively participate in learning, thereby enhancing their learning satisfaction.

Based on the achievements of the Attention dimension (84.29%) and Relevance (82.32%), it shows that the decimal material related to real-world situations successfully increased students' curiosity. The concept of integrating real contexts, according to Piaget's theory, helps students connect their real experiences with abstract mathematical representations. Conversely, the Confidence dimension is the only dimension categorized as "Effective" with the lowest percentage of 79.82%. This indicates that, although the media has provided visual cues gradually, some students still feel uncertain when facing more complex decimal problem variations.

Evaluation

Evaluation is the final stage in this development research which includes formative and summative evaluation. Formative evaluation is conducted at each stage of ADDIE through gradual revisions of notes and feedback from validators. This process has proven effective in refining the DECILIFE media, from material clarity, visual layout, to the use of navigation buttons before the media is widely implemented. On the other hand, summative evaluation is conducted to measure the success of DECILIFE media based on feasibility, practicality, and effectiveness test results.

Overall, DECILIFE media successfully achieved the “Very Valid” category by experts with an average percentage of 88%. Additionally, this media also received the “Practical” category based on student and teacher responses with a combined average percentage of 79.68%. DECILIFE media also obtained the “Very Effective” category with an average percentage of 83.08% in supporting student learning motivation based on the ARCS model. The success of this media

demonstrates the importance of integrating Piaget's cognitive development theory and Keller's ARCS motivation model into the design of mathematics learning media. The interactive visualization in DECILIFE media can help students transition from concrete operational to formal operational phases. Moreover, they can maintain active student engagement during the learning process.

This result is in line with the research conducted by Handika et al. (2025) and Putri et al. (2023), which states that interactive learning media based on Articulate Storyline 3 can provide a new learning experience for students, increase active student engagement, and assist teachers in delivering mathematics material more variably. With the presence of such interactive media, students do not merely act as passive recipients of information, but instead engage directly and exploratively in understanding mathematical concepts. In addition, these findings are also supported by the research of Safitri et al. (2025), which shows that the use of interactive media based on visuals and engaging features is effective in encouraging the interest and motivation of junior high school students in learning mathematics. Furthermore, Maulidia & Muthi (2025) also added that the use of interactive media can enhance students' motivation and interest in learning because the visual, audio, and interactive activities make them enthusiastic and happy in their learning.

Furthermore, the effectiveness of the DECILIFE media is influenced by the alignment of the media's visual design with the four ARCS motivation models. The presentation of dynamic visual design has been proven to capture students' attention (Attention) for learning. This is supported by the research of Wulandari et al. (2025) and Atika et al. (2022), which states that the use of visual media has been proven to stimulate students' curiosity, making them active and enthusiastic in participating in learning. In addition to capturing attention, DECILIFE media is also equipped with contextual materials that strengthen the Relevance dimension. This is supported by the findings of Mahmudi et al. (2022) and Apriyanti et al. (2023), which state that contextual-based mathematics learning can enhance understanding and make the learning process meaningful because students relate the context to relevant mathematical concepts.

Meanwhile, the Confidence dimension is introduced through the creation of interactive quizzes equipped with immediate feedback that provides instant confirmation of students' activities. Providing immediate feedback in interactive media allows them to understand which areas need improvement, thereby encouraging students to be brave and boosting their self-confidence (Ali et al., 2025; Pratiwi et al., 2026). The success of students in solving problems and correcting their mistakes thanks to direct feedback will ultimately trigger the achievement of the final dimension, which is Satisfaction. Overall, the fulfillment of all ARCS dimensions proves that the effectiveness of DECILIFE media lies not only in its technical sophistication but also in its ability to integrate students' cognitive and affective aspects.

Although the overall development of the DECILIFE media shows positive results, this research has some technical and operational limitations during the trial process. First, the DECILIFE media was developed in a web-based format to avoid a large application size and not burden the students' device memory. However, the use of this web-based format leads to a dependence on independent internet connections due to the limited Wi-Fi facilities at the school, in line with the research by Junaidi et al. (2024). In addition, the scope of testing for this media is limited to only one school with a specific focus on decimal number material as stated by Gumilar & Effendi (2022). This limitation serves as an important note and foundation for future research in developing interactive learning media to be more flexible and accessible offline.

CONCLUSION

Based on the research and development results using the ADDIE model, the DECILIFE media has been proven valid, practical, and effective for use in mathematics learning. In terms of feasibility, the DECILIFE media achieved the category of 'Very Valid' based on assessments from media and material experts, with an average percentage of 88%. Furthermore, in terms of practicality, the DECILIFE media achieved the 'Practical' category based on responses from students and teachers after using the media, with an average percentage of 79.68%.

Additionally, the DECILIFE media has been proven to be 'Very Effective' in supporting students' motivation to learn mathematics based on the ARCS model, with an average percentage of 83.08%. The presence of this media provides an exploratory learning experience and encourages active student engagement, as well as helps teachers deliver material more variably. As a recommendation for future research, the development of interactive learning media is suggested to optimize the compression of digital assets so that the product can be used offline, without dependence on internet connections.

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