

Development of an Animated Video on Local Bogor Landforms to Enhance Understanding of IPAS Concepts

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Article Info

Keywords:

ADDIE, Animated video, Bogor local environment, Science and Social Studies.

ABSTRACT

Learning Science and Social Studies, particularly the topic of landforms, remains challenging because classroom instruction is largely dependent on textbooks, limiting students' opportunities to experience meaningful and contextual learning. Since landform concepts are more easily understood when connected to the surrounding environment, this study aimed to develop an animated learning video based on the local environment of Bogor and examine its feasibility and effectiveness in improving students' conceptual understanding of IPAS. This research employed the Research and Development (R&D) method using the ADDIE model, which consists of the stages of analysis, design, development, implementation, and evaluation. The product was tested on 26 fifth-grade students. Data were collected through observations, interviews, expert validation sheets, teacher and student response questionnaires, and pretest and posttest assessments. Quantitative descriptive analysis was used to evaluate the product, while its effectiveness was determined using the N-Gain score. The results indicated that the animated video achieved excellent feasibility, with validation scores of 100% from media experts, 98% from subject matter experts, and 100% from language experts. Positive responses were also obtained from teachers (94.67%) and students (98%). Students' conceptual understanding improved, as reflected by the increase in the mean score from 61.54 on the pretest to 88.62 on the posttest, with an N-Gain score of 0.649, categorized as moderate. Therefore, the developed animated video is considered valid, practical, and effective as an alternative instructional medium for IPAS learning in elementary schools.

Informasi Artikel

Kata Kunci:

ADDIE, Lingkungan Lokal Bogor, Pemahaman konsep IPAS, Video Animasi.

ABSTRAK

Pembelajaran IPAS pada materi bentang alam masih menghadapi kendala karena proses pembelajaran cenderung berpusat pada penggunaan buku ajar, sehingga peserta didik belum memperoleh pengalaman belajar yang kontekstual dan bermakna. Padahal, materi bentang alam akan lebih mudah dipahami apabila dihubungkan dengan lingkungan sekitar. Penelitian ini bertujuan mengembangkan video animasi berbasis lingkungan lokal Bogor yang layak digunakan serta menguji efektivitasnya dalam meningkatkan pemahaman konsep IPAS peserta didik. Penelitian menggunakan metode Research and Development (R&D) dengan model pengembangan ADDIE yang meliputi tahap analisis, desain, pengembangan, implementasi, dan evaluasi. Uji coba produk dilakukan pada 26 peserta didik kelas V. Pengumpulan data dilakukan melalui observasi, wawancara, validasi ahli, angket respons guru dan peserta didik, serta tes pretest dan posttest. Data dianalisis secara deskriptif kuantitatif, sedangkan efektivitas media diukur menggunakan nilai N-Gain. Hasil penelitian menunjukkan bahwa video animasi memperoleh kategori sangat layak berdasarkan validasi ahli media (100%), ahli materi (98%), dan ahli bahasa (100%). Respons guru mencapai 94,67%, sedangkan respons peserta didik sebesar 98% dengan kategori sangat baik. Penggunaan media juga meningkatkan pemahaman konsep IPAS yang ditunjukkan oleh peningkatan nilai rata-rata dari 61,54 pada pretest menjadi 88,62 pada posttest, dengan nilai N-Gain sebesar 0,649 yang termasuk kategori sedang. Dengan demikian, video animasi berbasis lingkungan lokal Bogor dinyatakan valid, praktis, dan efektif sebagai alternatif media pembelajaran IPAS di sekolah dasar.

Article History

Received : 15/03/2026

Revised : 28/05/2026

Accepted : 21/07/2026

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1. Introduction

Natural and Social Sciences (IPAS) is a primary school subject aimed at developing students' understanding of various natural and social phenomena in their immediate environment in a contextual and meaningful way. One of the topics covered is landforms; mastering this requires a conceptual understanding that enables students to recognize various natural features and relate them to their daily lives. Conceptual understanding refers to a student's ability to comprehend, interpret, and explain a concept based on their existing knowledge (Suendarti & Liberna, 2021). Therefore, IPAS instruction requires support from media capable of presenting material in a concrete and meaningful manner, allowing students to grasp concepts more deeply.

However, the teaching of IPAS in primary schools still faces various challenges. Research indicates that students often struggle to understand abstract and contextual IPAS material because instruction remains teacher-centered and lacks the use of engaging, innovative media (Rahayu et al., 2025). This situation makes it difficult for students to connect the concepts they learn with real-life phenomena, resulting in suboptimal conceptual understanding.

Based on observations and teacher interviews, instruction in Natural and Social Sciences (IPAS) remains dominated by the use of textbooks and lecture-based methods. Learning resources lack variety and have not been linked to the students' immediate environment. Consequently, students tend to be passive, easily bored, and struggle to grasp concepts related to landforms. The limited variety of instructional media also renders the learning process less engaging, negatively impacting students' conceptual understanding.

One alternative for addressing these issues is the use of animated videos. Animated videos are an instructional medium that combines imagery, text, audio, and animation, thereby presenting material in a more engaging and accessible manner (Afifah, 2021). Integrating technology into instruction can yield media that are effective, interactive, and well-suited to the characteristics of elementary school students (Junika et al., 2023). Furthermore, various studies indicate that the use of animated videos enhances students' conceptual understanding by presenting material visually and more concretely (Febiyanti & Muhroji, 2024; Pratiwi et al., 2024).

The topic of landforms becomes more meaningful when linked to the local environment—the setting in which students live. Instruction grounded in the local environment helps students grasp the material contextually while simultaneously introducing them to the potential of their own region (Yuliatin & Rosmilawati, 2024). For this study, the local environment of Bogor was selected due to its diverse landforms that serve as valuable learning resources—such as Mount Gede Pangrango, Mount Salak, the Ciliwung and Cisadane Rivers, as well as hilly areas and rice fields—all of which represent the various landform types studied in the IPAS (Natural and Social Sciences) curriculum.

Previous research indicates that animated videos incorporating local wisdom are effective in enhancing the quality of learning. Kasmini and Rahmatillah (2023) state

that such videos can improve students' environmental literacy. Furthermore, Suzianti and Dafit (2023) explain that integrating local elements into instructional media helps students better understand, retain, and apply the concepts they are learning.

2. Research Methods

This study employs the Research and Development (R&D) method using the ADDIE development model, which comprises five stages: Analyze, Design, Development, Implementation, and Evaluation (Hidayat et al., 2021; Sugiyono, 2021). The ADDIE model was selected due to its systematic approach to producing valid, practical, and effective learning products.

In the analysis stage, needs were identified through observations and interviews with a fifth-grade teacher to understand the challenges associated with teaching the IPAS (Natural and Social Sciences) topic of landforms. The design stage involved preparing the content, creating a storyboard for an animated video based on the local environment of Bogor, and developing research instruments. Subsequently, the development stage involved product creation and validation by subject matter, media, and language experts, followed by revisions based on the validators' feedback. The implementation stage consisted of a limited trial involving 26 fifth-grade elementary school students. Finally, the evaluation stage assessed the feasibility, practicality, and effectiveness of the developed media.

The research subjects consisted of 26 fifth-grade students. The research validators included one subject matter expert, one media expert, and one language expert. Data collection techniques included observations, interviews, expert validation sheets, teacher and student response questionnaires, and pre-test and post-test assessments.

Data from expert validation and response questionnaires were analyzed using quantitative descriptive analysis—specifically percentages—to determine the media's feasibility and practicality. Meanwhile, media effectiveness was analyzed using the N-Gain test by comparing students' pre-test and post-test scores to measure the improvement in their understanding of IPAS concepts after using the Bogor local environment-based animated video (Sukarelawan et al., 2024).

3. Results And Discussion

Based on the results of this study, the research involved several stages, as follows:

3.1. Analyze

The analysis phase was conducted to identify learning needs prior to the development of the instructional media. This phase began with observations and interviews with the fifth-grade teacher. The analysis revealed that instruction on landforms within the Natural and Social Sciences (IPAS) curriculum was still dominated by the use of textbooks and lecture-based methods; consequently, students were less engaged, prone to boredom, and struggled to grasp landform concepts. Furthermore, the teacher had not utilized innovative or contextual learning media, meaning the material was not

effectively linked to the students' immediate environment.

Based on these findings, an animated video was developed as a learning medium; it is based on the local environment of Bogor and features examples of landforms found in the students' surroundings. This medium is expected to assist the teacher in delivering the material in a more engaging and contextual manner while enhancing the students' understanding of IPAS concepts.

3.2. Design

The design phase was conducted based on the results of the needs analysis by creating an initial design for the animated video. The design process began with the creation of a storyboard to serve as a guide for media development. The storyboard outlined the sequence of material presentation, the visualization of each scene, and the messages to be conveyed to students, ensuring the video's content aligned with learning objectives.

The animated video, titled "Sobat Petualang" (Adventure Buddy), featured content regarding landforms based on the local environment of Bogor. The video's content was systematically structured, comprising an opening sequence that introduced the animated characters; a presentation of material covering mountains, rivers, hills, and terraced landscapes in the Bogor region; and a closing section that provided a summary and encouraged students to preserve the environment.

In addition to creating the storyboard, this phase involved developing research instruments—specifically expert validation sheets, teacher and student response questionnaires, and pre-test and post-test questions—to assess the media's suitability and measure improvements in the understanding of Natural and Social Sciences (IPAS) concepts. The outcome of this phase was an initial design draft of the animated video, which was subsequently developed and refined during the development phase through validation and revision processes.

3.3. Development

Validation is a crucial stage in development research aimed at gathering data and information regarding product quality through expert assessment. This process involves validators—comprising media, subject matter, and language experts—who evaluate the suitability of the developed animated video on landforms. Validation is conducted to ensure the product meets the necessary criteria before its implementation in learning activities.

Based on the validation results provided by media experts following the first and second rounds of revision, assessment data was obtained and is presented in the diagram shown in Figure 1.

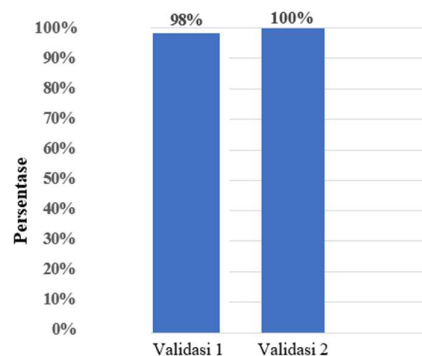


Figure 1. Media expert chart

The initial validation yielded a score of 98%. The researcher made improvements based on suggestions and feedback from the media expert. A second validation was then conducted, resulting in a score of 100%. These validation results indicate that the animated video media—covering the topic of landforms in the local Bogor environment and designed to enhance understanding of IPAS concepts—is "highly suitable" for use.

Based on the validation conducted by the subject matter expert following the first and second revision stages, assessment data was obtained and is presented in the following diagram.

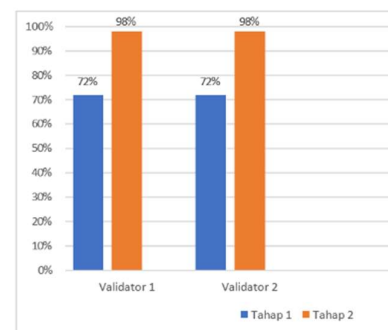


Figure 2. Subject matter expert chart

Based on the initial validation by two subject matter experts, a score of 72% was obtained. The researcher made improvements based on the experts' suggestions and feedback. A second validation was then conducted, resulting in a score of 98%. These results indicate that the content of the animated video—covering landforms in the local Bogor environment and designed to enhance understanding of IPAS concepts—is "highly suitable" for use.

Following the first and second revision stages, validation by a language expert yielded assessment data, which is presented in the diagram below.

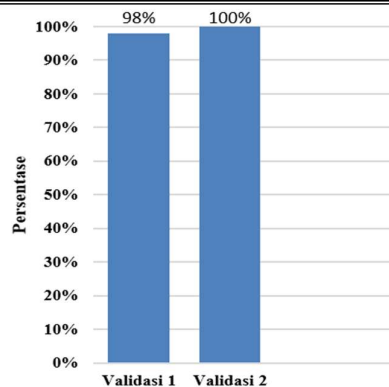


Figure 3. Linguist's chart

The initial validation yielded a score of 98%. The researcher made revisions based on suggestions and feedback from a language expert. A second validation was conducted, resulting in a score of 100%. Based on these validation results, the animated video media covering landforms in the local Bogor environment—designed to enhance understanding of IPAS concepts—is deemed "Highly Suitable" for use.

3.4. Implementation

The implementation phase was carried out after the animated video was deemed suitable based on expert validation. The media was then utilized in an IPAS (Natural and Social Sciences) lesson on landforms with 26 students.

The lesson was conducted in accordance with a previously prepared In-depth Learning Plan (RPM). During implementation, observations were made regarding lesson execution; group discussion outcomes were assessed using Student Worksheets (LKPD); student attitudes were observed; and pre-tests and post-tests were administered to measure improvements in conceptual understanding.

Implementation results showed that all stages of the lesson were executed excellently, achieving a 100% implementation rate. Group assessments based on the LKPD yielded an average score of 85 out of a maximum of 100, indicating that students successfully understood the material and completed the tasks well. Attitude assessments also showed satisfactory results, with scores on the highest scale reaching 90% for collaboration, 80% for creativity, and 82% for communication.

Furthermore, the students' average score rose from 61.54 on the pre-test to 88.62 on the post-test, with an N-Gain score of 0.649, placing it in the medium category. These results demonstrate that the animated video, based on the local environment of Bogor, was effective in enhancing students' conceptual understanding of IPAS.

3.5. Evaluation

The evaluation phase was conducted to gauge user reactions to the "Sobat Petualang"

animated video following its implementation in learning activities. This phase involved both teachers and students as evaluators, given their distinct roles in providing feedback on the media's quality.

Teachers evaluated the media based on content suitability, material presentation, and its overall suitability for the learning process. Meanwhile, students provided feedback based on their user experience, covering aspects such as visual presentation, the delivery of material, and the media's effectiveness in helping them understand the topic of landforms.

The evaluation results from both teachers and students were subsequently analyzed to determine the level of acceptance of the developed media and to serve as a basis for assessing the product's final quality. A summary of the teacher and student response questionnaire results is presented in the following table.

Table 1. Summary of Student Responses

Description	Results
Number of Respondents	26 Student
Obtained Score	1248
Maximum Score	1300
Percentage	96%
Category	Excellent

Based on the results of a student response questionnaire administered to 26 learners following the use of an animated video covering landforms in the local Bogor area, a total score of 1,248 out of a maximum of 1,300 was obtained. This result represents a percentage of 96%.

This percentage falls into the "Very Good" category, indicating that the developed learning medium received a positive response from the students.

The high percentage of positive student responses demonstrates that the animated video successfully captured students' attention during the learning process. Presenting the material through a combination of visual elements and animation helped students grasp the information more easily. Furthermore, the use of examples of landforms from the local Bogor area made the content feel more relevant to the students' daily lives, thereby increasing their interest in the lesson.

The positive feedback also indicates that the animated video was visually engaging, easy to understand, and effective in supporting the Natural and Social Sciences (IPAS) learning process. Consequently, the developed medium is not only suitable as a learning resource but also holds the potential to help students understand the concept of landforms in a more meaningful and contextual

manner.

Table 2. Summary of Teacher Response Results

Aspect	Score per Questionnaire	Maximum Score	Percentage
Suitability	14	15	93,33%
Usefulness	24	25	96,00%
Attractiveness	18	20	90,00%
Ease of Use	10	10	100%
Feasibility	5	5	100%
Overall Score	71	75	94,67%

Based on the assessment of teacher responses, a score of 94.67% was obtained. This figure falls within the 81%–100% range, placing it in the "Very Good" category. These quantitative findings factually indicate that the developed animated video media product is highly suitable for use in supporting digital learning.

4. Conclusion

This study produced an animated video learning medium based on the local environment of Bogor—specifically focusing on landforms—to enhance students' conceptual understanding of Natural and Social Sciences (IPAS). The medium was developed using the ADDIE model, which comprises five stages: Analyze, Design, Development, Implementation, and Evaluation. Validation results indicated that the developed medium was rated as highly suitable by subject matter, media, and language experts. Furthermore, feedback from teachers and students demonstrated that the medium possessed a high level of practicality for use in the learning process. Implementation results also showed that using the Bogor-based animated video improved students' understanding of IPAS concepts; this was evidenced by an increase in the average score from 61.54 on the pretest to 88.62 on the posttest, with an N-Gain score of 0.649, falling into the medium category. Consequently, the animated video based on Bogor's local environment is deemed suitable, practical, and effective as an IPAS learning medium for the topic of landforms.

References

- Afifah, U. N. (2021). Media pembelajaran maharah istima' berbasis video animasi untuk siswa madrasah ibtdaiyah. *International Conference of Students on Arabic Language*, 5, 181–188.
- Febiyanti, H., & Muhroji, M. (2024). Video animasi sebagai media meningkatkan pemahaman siswa pada pembelajaran IPA sekolah dasar. *Jurnal Pendidikan Guru Madrasah Ibtidaiyah Al-Multazam*, 10(1), 78–88. <https://doi.org/10.54892/jpgmi.v10i1.11>
- Hidayat, F., & Muhamad, N. (2021). Model ADDIE (Analysis, Design, Development, Implementation and Evaluation) dalam pembelajaran pendidikan agama Islam. *Jurnal Inovasi Pendidikan Agama Islam*, 1(1), 28–37.
- Junika, F. T., Muhajang, T., & Suchyadi, Y. (2023). Pengembangan media video animasi berbasis Powtoon

- pada materi statistika. *Dikdas Matappa: Jurnal Ilmu Pendidikan Dasar*, 6(2), 353–361. <https://doi.org/10.31100/dikdas.v6i2.2752>
- Kasmini, L., & Rahmatillah, Z. (2023). Pengembangan media video animasi berbasis kearifan lokal untuk meningkatkan literasi lingkungan pada pembelajaran IPA. *Visipena*, 14(2), 68–84. <https://doi.org/10.46244/visipena.v14i2.2340>
- Pratiwi, D. A. D., Agung, A. A. G., & Ambara, D. P. (2024). Video animasi berbasis discovery learning efektif meningkatkan kompetensi pengetahuan IPAS. *Jurnal Ilmiah Pendidikan Profesi Guru*, 7(1), 212–221. <https://doi.org/10.23887/jippg.v7i1.74303>
- Rahayu, F., Vebrianto, R., Aramudin, A., & Yovita, Y. (2025). Analisis kesulitan pembelajaran IPAS siswa sekolah dasar. *Action Research Journal Indonesia (ARJI)*, 7(3), 1341–1353. <https://doi.org/10.61227/arji.v7i3.440>
- Sugiyono. (2021). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, R&D, dan penelitian tindakan*. Bandung: Alfabeta.
- Suendarti, M., & Liberna, H. (2021). Analisis pemahaman konsep perbandingan trigonometri pada siswa SMA. *JNPM (Jurnal Nasional Pendidikan Matematika)*, 5(2), 326–339.
- Sukarelawan, I., Indratno, T. K., & Ayu, S. M. (2024). N-Gain vs Stacking. *Surya Cahya*.
- Wibowo, G. W., Gunawan, D., & Mardiana, D. (2025). Implementasi Pendekatan Pembelajaran Mendalam (*Deep Learning*) Dalam Meningkatkan Pemahaman Konsep Siswa Di Sekolah Dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(3), 144–158. <https://doi.org/10.23969/Jp.V10i3.27960>
- Widyahabsari, D., Aka, K. A., & Zaman, W. I. (2023, August). Media Video Animasi Materi Bangun Ruang. In *Prosiding SEMDIKJAR (Seminar Nasional Pendidikan Dan Pembelajaran)* (Vol. 6, Pp. 587–594). <https://doi.org/10.29407/Bqcgdq78>
- Yusi Ferawati, E. K. A. (2024). Pengembangan Multi Media Interaktif “Ban” Berbasis *Articulate Storyline* Pada Mata Pelajaran Ips Di Sekolah Dasar (Doctoral Dissertation, Universitas Pgri Adi Buana Surabaya). <https://repository.unipasby.ac.id/Id/Eprint/9528>
- Yuliatin, I., & Rosmilawati, I. (2024). Internalisasi nilai budaya adat Seren Taun Citorek dalam pembelajaran IPAS di sekolah dasar. *LINGUA: Jurnal Bahasa, Sastra, dan Pengajarannya*, 21(2). <https://doi.org/10.30957/lingua.v21i2.1009>
- Zuleni, E., & Marfilinda, R. (2022). Pengaruh Motivasi Terhadap Pemahaman Konsep Ilmu Pengetahuan Alam Siswa. *Educativo: Jurnal Pendidikan*, 1(1), 244–250.

