

Development of Web-Based Interactive *Hijaiyah* Systems (SIHATI) to Improve the Ability to Read *Hijaiyah* Letters for Elementary School Students

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Kata Kunci	Abstract
Interactive media, <i>Hijaiyah</i> letters, Web-based learning, Elementary students,	This study aims to develop and test the effectiveness of the SIHATI web-based interactive learning media (Interactive <i>Hijaiyah</i> System) in improving the ability of grade I elementary school students to read <i>Hijaiyah</i> letters. The method used is the ADDIE development model, which includes the stages of analysis, design, development, implementation, and evaluation. The research subjects amounted to 28 students. Data collection techniques were carried out through interviews, validation sheets, and initial and final tests. The results of the study showed that the SIHATI media was classified as very valid, based on assessments by material experts (92.5%) and media experts (97.5%). The results of the implementation also showed an increase in student learning outcomes, with an average pretest score of 53 increasing to 84 in the posttest, and an N-Gain score of 0.6 in the medium category. Thus, SIHATI media is effective in improving students' <i>Hijaiyah</i> reading skills.
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INTRODUCTION

The ability to read *Hijaiyah* letters is the main basis for learning the Qur'an, which must be mastered from an early age, especially at the elementary school level. In grade 1, elementary school students, the introduction of *Hijaiyah* letters is the initial stage in building religious literacy skills.¹ However, in practice, there are still many students who have difficulty recognizing, remembering, and pronouncing *Hijaiyah* letters well. This is due to the use of learning methods that are still conventional and do not actively involve students in the learning process.²

These difficulties are caused by various factors, one of which is the use of learning methods that are still conventional and do not actively involve students in the learning

¹Rifa Setiani Z dan Erwin Rahayu Saputra, "Pengembangan Media Pembelajaran Berbasis ICT pada Mata Pelajaran Agama Islam Materi Huruf *Hijaiyah* dan Harakatnya," *Jurnal Basicedu* 6, no. 1 (2022): 552–63, <https://doi.org/10.31004/basicedu.v6i1.1947>.

²Aan Yusuf Khunaifi dan Melda Yuniar, "Penggunaan Media Game Anak Edukasi *Hijaiyah* untuk Keterampilan Minat Baca Mata Pelajaran Pendidikan Agama Islam Siswa Kelas I SD Negeri 01 Tugu Harum," *JUPIN: Jurnal Pendidikan Islam Nusantara* 1, no. 2 (2022): 100–114, <https://jsr.unuha.ac.id/index.php/JUPIN/article/view/124/64>.

process.³ Research shows that the lack of use of interactive media in learning causes the learning process to be less effective and less able to improve student learning outcomes.⁴

Along with the development of information and communication technology, the use of digital-based learning media is one of the innovative solutions to improve the quality of learning. Digital learning media is able to integrate various multimedia elements such as text, images, audio, and video so that the learning process becomes more interactive and interesting.⁵ Interactive learning media that utilize technology, such as multimedia, educational games, and web-based applications, have been proven to increase students' interest and learning outcomes because they present material in a more interesting and varied way.⁶ This is supported by research that shows that digital-based learning media is indeed able to increase the involvement and learning outcomes of elementary school students.⁷

In addition, web-based applications have the advantage of being accessible anytime and anywhere as long as they are connected to the internet.⁸ Web-based applications are also capable of integrating various elements such as text, images, audio, and animation in a single learning platform.⁹ The use of web-based learning media has also been proven to be effective in improving student understanding and learning outcomes through increasing grades from pretest to posttest in the learning process.¹⁰ One of the web-based media that can be used in learning is Google Sites. The use of Google Sites as a learning medium can increase student activity and help students understand the material through the presentation of learning videos, digital materials, and interactive quizzes.¹¹

In Islamic Religious Education learning, interactive learning media have an important role in helping students understand abstract material, including the introduction of *Hijaiyah*

³Novandaru Achnivandra Dwi Fortuna dan Hardika Dwi Hermawan, "Media Pembelajaran Huruf *Hijaiyah* untuk Siswa Sekolah Dasar berbasis Augmented Reality," *Edumatic: Jurnal Pendidikan Informatika* 7, no. 1 (2023): 88–97, <https://doi.org/10.29408/edumatic.v7i1.13373>.

⁴Mustika, Fanisya Alva, Yuni Wibawanti, dan Juliana Juliana. "Pembuatan Dan Pelatihan Media Interaktif Mengenal Huruf *Hijaiyah*." *Jurnal PkM Pengabdian kepada Masyarakat* 5, no. 2 (2022): 118. <https://doi.org/10.30998/jurnalpkm.v5i2.8795>.

⁵Ani Nur Aeni et al., "Pengembangan Media Website Edukatif CEBAN (Cekatan Membaca Al-Quran) Pada Pembelajaran PAI Kelas 4 SD," *Geneologi PAI Jurnal Pendidikan Agama Islam* 11, no. 02 (2024): 2654–3575, <https://doi.org/10.32678/geneologipai.v11i2.10069>.

⁶Dewi Puput Saputri, "Penerapan Video Pembelajaran Interaktif Huruf *Hijaiyah* Pada Anak Usia Dini," *Jurnal Pendidikan dan Teknologi Indonesia* 3, no. 8 (2023): 329–36, <https://doi.org/10.52436/1.jpti.95>.

⁷Siti Nur Paridotul R, Rusi Rusmiati Aliyyah, dan Wilis Firmansyah, "Pengembangan Media Pembelajaran Sembia Sosis Berbasis Android Untuk Siswa Sekolah Dasar," *AR-RIAYAH: Jurnal Pendidikan Dasar* 6, no. 1 (2022): 69–87, <https://doi.org/10.29240/jpd.v6i1.4024>.

⁸Sutama Sutama dan Ira Nur Fajriani, "Media Pembelajaran E-Learning Berbasis WEB di Tingkat Sekolah Menengah Kejuruan," *Jurnal VARIDIKA* 33, no. 2 (2022): 129–40, <https://doi.org/10.23917/varidika.v33i2.15330>.

⁹Lutvita Dwi Iklima dan Indra Yustiana, "Aplikasi Belajar Huruf *Hijaiyah* Berbasis Web TPA Uswatun Hasanah," *Jurnal Computer Science and Information Technology (CoSciTech)* 3, no. 3 (2022): 364–70, <https://doi.org/10.37859/coscitech.v3i3.4386>; Sutama dan Fajriani, "Media Pembelajaran E-Learning Berbasis WEB di Tingkat Sekolah Menengah Kejuruan." *Jurnal VARIDIKA* 33, no. 2 (2022): 129–40. <https://doi.org/10.23917/varidika.v33i2.15330>.

¹⁰Yeremia Alfa Dio dan Ekohariadi Ekohariadi, "Pengembangan Media Pembelajaran Berbasis Web Dalam Meningkatkan Efektivitas Pembelajaran Pemrograman Web (Studi Kasus : Smks Semen Gresik)," *IT-Edu: Jurnal Information Technology and Education* 6, no. 2 (2021): 139–52, <https://doi.org/10.26740/it-edu.v6i3.46366>.

¹¹Humaira Silfiani et al., "Implementing Google Sites to Improve Elementary School Students' Understanding of Science Concepts," *AR-RIAYAH: Jurnal Pendidikan Dasa* 9, no. 2 (2025): 121–42, <https://doi.org/10.29240/jpd.v9i2.13874>.

letters and religious values.¹² Interactive digital media is also able to increase students' learning motivation because it provides a more interesting learning experience and actively involves students in the learning process.¹³

Several previous studies have shown that the use of technology-based learning media, such as interactive multimedia and educational games, can significantly increase the ability to read *Hijaiyah* letters and students' learning motivation.¹⁴ In fact, the development of technology-based media such as augmented reality and interactive applications has been declared feasible and effective in increasing the learning interest of elementary school students.¹⁵ This shows that learning media innovation has an important role in creating a more effective, interactive, and appropriate learning process for elementary school students.¹⁶ However, these studies generally still focus on the development of one type of media or one specific learning feature, so that it does not provide an integrated learning experience on one platform. In addition, some of the media developed require special applications or devices so that accessibility is still limited for elementary school students. Meanwhile, research that develops web-based *Hijaiyah* literacy learning media by integrating various learning features such as digital materials, learning videos, interactive flashcards, educational games, and evaluations in one easily accessible platform is still relatively limited.

Based on these conditions, there is a research gap in the form of limited development of *Hijaiyah* letter learning media that is not only interactive, but also easily accessible via the web and integrates various learning activities in one platform. Therefore, this research offers novelty through the development of the SIHATI (Interactive *Hijaiyah* System) application based on Google Sites, which combines digital flashcard features, material flipbooks, learning videos, songs, and games, and interactive evaluations in one learning medium designed to provide an interactive, systematic, and fun learning experience for grade I elementary school students. The integration of these various features is expected to contribute to improving students' *Hijaiyah* reading skills, as well as being an alternative solution for teachers in delivering learning materials more effectively and interactively. Thus, this study aims to develop and test the feasibility and effectiveness of the SIHATI application web-based learning media in improving the ability to read *Hijaiyah* letters of grade 1 elementary school students.

METHOD

The subjects in this study were 28 students in grade I of SD Negeri Cijambe 2. This research was conducted with the aim of improving the ability to read *Hijaiyah* letters through the use of a web-based learning media application, "SIHATI (Interactive *Hijaiyah* System)".

¹²Ani Nur Aeni et al., "Development of Google Sites-Based Tosaurba Website Media in Learning Islamic Religious Education in Elementary Schools," *Al-Ulum Jurnal ...* 12, no. 3 (2025): 241–51, <https://doi.org/10.31102/alulum.12.3.2025.241-251>.

¹³Sutama, Sutama, dan Ira Nur Fajriani, "Media Pembelajaran E-Learning Berbasis WEB di Tingkat Sekolah Menengah Kejuruan." *Jurnal VARIDIKA* 33, no. 2 (2022): 129–40. <https://doi.org/10.23917/varidika.v33i2.15330>.

¹⁴Aan Yusuf Khunaiifi dan Melda Yuniar, "Penggunaan Media Game Anak Edukasi *Hijaiyah* untuk Keterampilan Minat Baca Mata Pelajaran Pendidikan Agama Islam Siswa Kelas I SD Negeri 01 Tugu Harum." *JUPIN: Jurnal Pendidikan Islam Nusantara* 1, no. 2 (2022): 100–114. <https://jsr.unuaha.ac.id/index.php/JUPIN/article/view/124/64>.

¹⁵Novandaru Achnivandra DwiFortuna danHardika Dwi Hermawan, "Media Pembelajaran Huruf *Hijaiyah* untuk Siswa Sekolah Dasar berbasis Augmented Reality." *Edumatic: Jurnal Pendidikan Informatika* 7, no. 1 (2023): 88–97. <https://doi.org/10.29408/edumatic.v7i1.13373>.

¹⁶Edi Widiyanto et al., "Pemanfaatan Media Pembelajaran Berbasis Teknologi Informasi," *Journal of Education and Teaching* 2, no. 2 (2021): 213, <https://doi.org/10.24014/jete.v2i2.11707>; Hendra et al., *Buku Media Pembelajaran Berbasis Digital*, ed. oleh E Efitra dan S Sepriano (PT. Sonpedia Publishing Indonesia, 2023).

This research is motivated by the low ability of students to recognize, remember, and distinguish *Hijaiyah* letters that have similar shapes.

The method used in this study is the Research and Development (R&D) method with the ADDIE development model, which includes five stages, namely analysis, design, development, implementation, and evaluation.¹⁷ The implementation stage of SIHATI media will be carried out on March 11, 2026, in classroom learning activities by utilizing SIHATI media as the main means of delivering material.

In the analysis stage, an analysis of the learning needs of *Hijaiyah* letters was carried out at SD Negeri Cijambe 2, which included an analysis of student characteristics, the curriculum used, learning materials, and the use of learning media in the field. Interviews with teachers were conducted to obtain information about students' level of understanding of *Hijaiyah* letters before SIHATI media was used as a learning medium. Furthermore, at the design stage, the researcher designed SIHATI learning media by adjusting the characteristics of grade I elementary school students. The design includes the preparation of materials, displays, and supporting features such as digital flashcards, learning videos, and interactive evaluations. In the development stage, the media that has been designed is then developed using the Google Sites platform by integrating various learning components such as text, images, audio, and video. The resulting product is then validated by material experts and media experts to determine the feasibility level of learning media.

The implementation stage was carried out by testing the SIHATI media for students in learning activities. Students use the media to recognize and read *Hijaiyah* letters through various available features. Furthermore, the evaluation stage is carried out to determine the effectiveness of learning media. The data collection technique was carried out using the initial test (pre-test) and the final test (post-test). In addition, instruments in the form of validation sheets of material experts and media experts are also used to assess the feasibility of the developed product.

In addition to quantitative data from pre-test and post-test results, this study is also supported by qualitative data in the form of observation results during the learning process to see students' responses, involvement, and enthusiasm in using SIHATI media. The data is used as a reflection material at the evaluation stage to improve the developed media to better suit the needs of grade I elementary school students.¹⁸

In addition, the results of data analysis were also used to identify the advantages and disadvantages of features in SIHATI media, such as visual appearance, audio pronunciation clarity, and the level of interactivity of exercise questions. The results of the identification are the basis for the follow-up revision process, so that the media developed is more optimal in improving the ability to read *Hijaiyah* letters of grade I elementary school students.¹⁹

The assessments obtained from material experts and media experts are then analyzed using the percentage formula, as in the following formula:

$$\text{Percentage} = \frac{\text{Obtained Score}}{\text{Maximum Score}} \times 100\%$$

¹⁷Rika Oktavia Hartari dan Galih Mahardika Christian Putra, "Development of Web Based Learning to Improve Science Learning Outcome of Student in Elementary School," *Jurnal Teknologi Pendidikan* 27, no. 1 (2025): 230–44, <https://doi.org/10.21009/JTP2001.6>.

¹⁸Adi Rustandi dan Rismayanti, "Penerapan Model ADDIE dalam Pengembangan Media Pembelajaran di SMPN 22 Kota Samarinda," *Jurnal Fasilkom* 11, no. 2 (2021): 57–60, <https://doi.org/10.37859/jf.v11i2.2546>.

¹⁹Fadillah Salsabila dan Aslam, "Pengembangan Media Pembelajaran Berbasis Web Google Sites pada Pembelajaran IPA Sekolah Dasar," *Jurnal Basicedu* 5, no. 5 (2021): 3(2), 524–32, <https://doi.org/10.31004/basicedu.v6i4.3155>.

The results of the calculation are then interpreted based on the media validity criteria as shown in Table 1, so that it can be known whether the media category is invalid, less valid, sufficiently valid, valid, or very valid.

Table 1. Media Validity Criteria

Percentage (%)	Criteria	Description
0-20	Invalid	Needs a Total Revision
21-40	Less Valid	Needs a Revision
41-60	Fairly Valid	Needs a Revision
61-80	Valid	Needs a Minor Revision
81-100	Strongly Valid	No Revision Needed

Source: Ridwan (2012) as cited in.²⁰

To determine the effectiveness of media use, pre-test and post-test results were analyzed using the N-Gain test. N-Gain is a measure used to determine the improvement in student learning outcomes after being given treatment, by comparing scores before and after learning. The calculation of N-Gain can be formulated as follows:

$$N - Gain = \frac{Sp_{post} - Sp_{pre}}{Sm_{maks} - Sp_{pre}}$$

Description:

N-Gain indicates the gain normality test value

N-Gain indicates the pretest score

N-Gain indicates the posttest score

N-Gain indicates the maximum score

Table 2. Classification of Gain Normality Scores

Gain normality Scores	Criteria
$0,70 \leq n \leq 1,00$	High
$0,30 \leq n < 0,70$	Medium
$0,00 \leq n < 0,30$	Low

Source: Karinaningsih (2010) as cited in.²¹

RESULTS AND DISCUSSION

Results

This research is compiled based on the stages of the ADDIE model, which includes analysis, design, development, implementation, and evaluation. The results of the study not only present empirical data, but also interpret the meaning of data in the context of developing *Hijaiyah* reading learning media for grade 1 elementary school students.

At the Analysis stage, it was found that the ability of grade 1 students to read *Hijaiyah* letters was still relatively low. Based on interviews with Islamic Religious Education teachers, students had difficulty distinguishing *Hijaiyah* letters that had similar shapes. These findings are in line with research that states that children often have difficulty recognizing,

²⁰Fitriyani dan Ayu Lintang, dan Mintohari. "Pengembangan Media Game Undercover Berbasis Android Untuk Meningkatkan Hasil Belajar Materi Tata Surya Mata Pelajaran Ipa Kelas Vi Sekolah Dasar." *Jpgsd* 08, no. 01 (2020): 1–12. <https://ejournal.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/32962>.

²¹Mirani Oktavia dan Aliffia Teja Prasasty. "Uji Normalitas Gain untuk Pemantapan dan Modul dengan One Group Pre And Post Test." *Symposium Nasional Ilmiah & Call for Paper Unindra (Simponi)* 1, no. 1 (2019): 596–601. <https://doi.org/10.30998/simponi.v0i0.439>.

pronouncing, and distinguishing letters that are similar in shape.²² Therefore, interactive and interesting learning media are needed to help the process of visual identification of letters.

In addition to analyzing students, curriculum analysis is also carried out, which refers to the Independent Curriculum Phase A. This curriculum encourages teachers to be active and creative in developing materials, learning media, and learning strategies that suit the needs of students.²³ A phase or level of development is a learning achievement that must be achieved by students according to their characteristics, potential, and needs.²⁴ Based on the learning outcomes of Islamic Religious Education and Ethics, students are expected to be able to understand the letters of *Hijaiyah* with harakat, the letters of the *Hijaiyah* in continuity, Surah Al-Fatiha, several short surahs of the Qur'an, and hadiths about cleanliness. The learning outcomes are then broken down into learning objectives that focus on understanding *Hijaiyah* letters and their meanings, as well as continuous *Hijaiyah* letters.

Material analysis shows that the *Hijaiyah* letter bahuujwa is an important basic material in Islamic Religious Education because it is the foundation for learning the Qur'an. This is in line with the previous opinion, which stated that Islamic Religious Education aims to improve understanding and shape the character of students in accordance with the values contained in the Qur'an and Hadith.²⁵ However, *Hijaiyah* letter material has its own level of difficulty for elementary school students, especially in distinguishing the shape of the letter and its pronunciation. The characteristics of Phase A students who are still in the concrete operational stage cause them to need learning media that are able to present a visual, auditory, and interactive learning experience so that the material is easier to understand.

The results of the analysis of the use of learning media in the field show that teachers still use conventional media such as textbooks, whiteboards, and *Hijaiyah* posters pasted on the classroom walls. The media helps the learning process, but it still has limitations because it is not able to present examples of letter pronunciation in audio or interactive activities that can increase student involvement. These findings are the basis for the development of SIHATI media that integrates digital materials, audio pronunciation, interactive flashcards, educational games, and learning evaluation in one web-based platform.

At the Design stage, the media is designed according to the characteristics of grade 1 students who tend to like concrete, visual, simple, and accessible learning. Google Sites was chosen as the platform to develop the SIHATI web because it is able to integrate various learning resources in one unified view. The platform allows the incorporation of various components such as learning materials, prayers, evaluations, songs and games, flashcards, developer profiles, learning outcomes, and learning objectives. Menu structures such as

²²Rahmatia, Endang Ruswiyani, dan Abd. Hakim Naba, "Melatih Kemampuan Anak Mengenal Huruf *Hijaiyah* Melalui Video Pembelajaran Menggunakan Aplikasi Inshot Di Rumah TK Nuryani Ishak," *ISOLEK: Jurnal Pendidikan, Pengajaran, Bahasa, dan Sastra* 2, no. 2 (2024): 318–26, <https://doi.org/10.59638/isolek.v2i2.312>.

²³An Wariyatul Hikmah, Nono Mulyono, dan Yusuf Hidayat, "Analisis Iplementasi Kurikulum Merdeka Dalam Pembelajaran Pendidikan Agama Islam di Sekolah Dasar," *Jurnal Intisabi* 2, no. 2 (2025): 176–93, <https://doi.org/10.61580/itsb.v2i2.69>.

²⁴Dewi Rahmadayanti dan Agung Hartoyo, "Potret Kurikulum Merdeka, Wujud Merdeka Belajar di Sekolah Dasar," *Jurnal Basicedu* 6, no. 4 (2022): 7174–87, <https://doi.org/10.31004/basicedu.v6i4.3431>.

²⁵An Wariyatul Hikmah, Nono Mulyono, dan Yusuf Hidayat. "Analisis Iplementasi Kurikulum Merdeka Dalam Pembelajaran Pendidikan Agama Islam di Sekolah Dasar." *Jurnal Intisabi* 2, no. 2 (2025): 176–93. <https://doi.org/10.61580/itsb.v2i2.69>.

home, learning objectives, materials, videos, simulations, and evaluations help create a systematic learning flow and facilitate student understanding.²⁶

The use of digital flashcards in SIHATI is designed using the Canva graphic design application. This flashcard aims to improve students' visual discrimination ability against *Hijaiyah* letters. This media presents letters in a focused, interesting, and repetitive manner so that it can help students distinguish similar letters. This is in line with previous research that states that *Hijaiyah* letter cards are effective in helping children recognize and remember letter shapes gradually.²⁷ With a digital format, flashcards in SIHATI become more flexible because they can be used repeatedly both at school and at home, thus supporting students' independent practice.

In addition, the material is developed using Canva and then turned into an interactive digital book through the Heyzine flipbook platform. The presentation of materials in the form of flipbooks allows students to read the material sequentially, like an interactive digital book. This flipbook combines text, images, animations, audio, and video, in a flipbook making learning more interactive, engaging, and effective.²⁸ Thus, flipbooks in SIHATI not only enrich the variety of displays but also make it easier for students to understand *Hijaiyah* letter material gradually.

The use of songs and games in SIHATI also makes an important contribution to increasing motivation and maintaining students' attention during learning. This is in line with research that states that interactive media and educational games can increase the interest and motivation of elementary school students.²⁹ This element helps reduce boredom as well as create a more enjoyable learning experience. Learning songs are created and presented through the YouTube video platform, while educational games are designed using artificial intelligence features in Canva's design app. Through this feature, games are made in the form of visual quizzes and interactive activities that are tailored to *Hijaiyah* letter material so that they can practice the ability to recognize letters in a fun way. The integration of various features, such as flashcards, materials, evaluations, songs, and games, shows that there is a variety of stimuli that are important in learning to read at an early age.

²⁶Ela Islanda dan Deni Darmawan, "Pengembangan Google Sites Sebagai Media Pembelajaran untuk Meningkatkan Prestasi Belajar Siswa T," *Jurnal Teknodik* 27, no. 1 (2023): 51–62, <https://doi.org/10.32550/teknodik.vi.991>.

²⁷Fuadah, Sarah Salmatul, Khoirun Nisa Azizah, dan Syahadah Albaqiyatul Karimah. "Pendampingan Belajar Dengan Media Flashcard Sebagai Upaya Peningkatan Kemampuan Mengenal Huruf *Hijaiyah* di TKIT AKASIA Desa Rancabungur." *PRAXIS: Jurnal Pengabdian Kepada Masyarakat* 2, no. 1 (2024): 75–81. <https://doi.org/10.47776/praxis.v2i1.748>.

²⁸Ahmad Idrus Sardi, Asmaji Muchtar, dan Toha Makhshun, "Flipbook Digital Dalam Pembelajaran PAI: Inovasi Media Pembelajaran Kreatif Untuk Meningkatkan Minat dan Hasil Belajar Siswa," *Jurnal Literasiologi* 13, no. 2 (2025): 182–201, <https://doi.org/10.47783/literasiologi.v13i2.924>.

²⁹Nailil Muna Asshalikha et al., "The Influence of Monopoly Media on The Students' Interest in Learning Process of Elementary School," *AR-RIAYAH: Jurnal Pendidikan Dasar* 9, no. 1 (2025): 97–104, <https://doi.org/10.29240/jpd.v9i1.12837>.

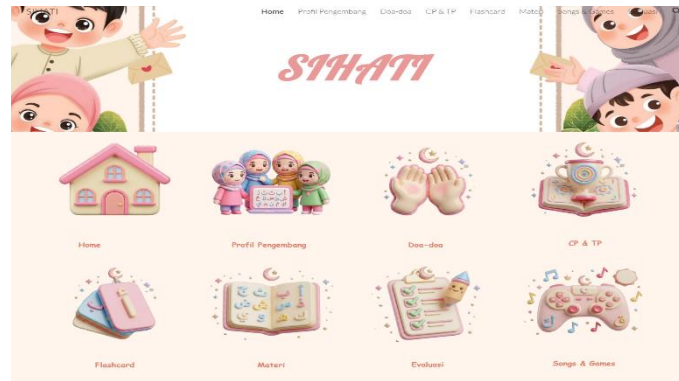


Figure 1. Sehat Home Page

In the Development stage, all designs are realized into SIHATI web products based on Google Sites. Various media components are integrated into one interconnected digital learning system. So that it is able to create a directed learning experience. These findings are in line with previous research that shows that Google Sites is an engaging, practical, flexible, and time-to-time learning medium.³⁰

After the learning media development process is completed, the resulting product is then tested for feasibility through validation by material experts and media experts. This validation activity aims to evaluate the quality of content, material presentation, media display, and the level of suitability of the media with student characteristics and learning objectives that have been designed beforehand.

Table 3. Results of Validity Test by Material Experts

Aspect	Obtained Score	Maximum Score	Percentage	Categories
Material Suitability	20	20	100%	Strongly Valid
Material Presentation	18	20	90%	Strongly Valid
Material Writing	19	20	95%	Strongly Valid
Positive Impact of Material	17	20	85%	Strongly Valid
Average	18,5	20	92,5%	Strongly Valid

The results of the assessment conducted by material experts and media experts show that the products developed are classified as very valid for use in learning. Based on the results of the evaluation of material experts, a score of 92.5% was obtained. The assessment details show that the aspect of material suitability reaches 100%, material presentation 90%, language use 90%, and material impact of 85%, all of which are in the very valid category. This indicates that the material prepared is in harmony with the learning objectives, presented in a coherent manner, uses appropriate language, and is able to improve students' understanding of *Hijayah* letters.

³⁰Siti Dhinda Tiarani et al., "Pengembangan Media Pembelajaran Digital Berbasis Google Sites dengan Model ADDIE Pada Materi Pendidikan Pancasila di Sekolah Dasar," *Jurnal Inovasi Pendidikan dan Pembelajaran Sekolah Dasar* 9, no. 1 (2025): 47–61, <https://doi.org/10.24036/jippsd.v9i1>; Bob Syahrial Ghozali, Supeno, dan Mohammad Imam Farisi, "Pengembangan E-Modul Berbasis Google Sites Untuk Meningkatkan Kemampuan Penalaran Berbasis Bukti Dalam Pembelajaran IPA Di Sekolah Dasar," *ELSE (Elementary School Education Journal)* 8, no. 2 (2024): 368–78, <https://doi.org/10.30651/else.v8i2.22631>; Ela Islanda dan Deni Darmawan, "Pengembangan Google Sites Sebagai Media Pembelajaran untuk Meningkatkan Prestasi Belajar Siswa T." *Jurnal Teknodik* 27, no. 1 (2023): 51–62. <https://doi.org/10.32550/teknodik.vi.991>.

Table 4. Validity Test Results by Media Experts

Aspect	Obtained Score	Maximum Score	Percentage	Categories
Product Suitability	20	20	100%	Strongly Valid
Product Appearance	20	20	100%	Strongly Valid
Ease of Access	20	20	100%	Strongly Valid
Product Impact	18	20	90%	Strongly Valid
Average	19,5	20	97,5%	Strongly Valid

On the other hand, validation results from media experts show a score of 97.5%, which is also included in the very valid category. These findings confirm that the media developed has an attractive appearance, is easy to operate, and provides a positive learning experience for students. The aspects of product suitability, display quality, and ease of access each obtained a perfect score (100%), while the product impact aspect reached 90%. The high value in the visual aspect and ease of use show that the simple but attractive design is very effective in supporting early age students in learning to read *Hijaiyah* letters. These results are in line with previous research that states that well-structured, interactive, and easy-to-use digital learning media tend to have a high level of validity and are able to increase student learning engagement.³¹

The Implementation stage was carried out on 28 1st-grade students at SD Negri Cijmbe 2. In its implementation, students learn through various activities, such as the use of digital flashcards to recognize letters, flipbook-based materials to deepen understanding, daily prayers, as well as Wordwall and Wayground for practice and evaluation. This media not only delivers material, but also provides a learning experience that involves direct viewing, listening, trying, and evaluating activities. This approach is in keeping with the characteristics of 21st-century learning that emphasize student interactivity and active participation.

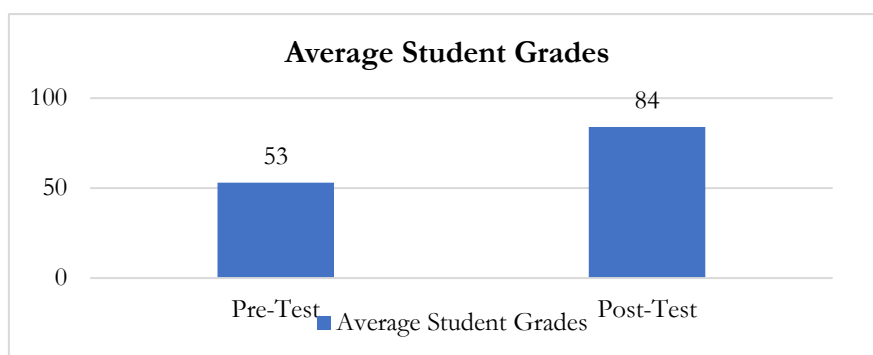
During the SIHATI media implementation process, observations were also made on student responses and involvement during learning. The results of the observation showed that most of the students responded positively to the use of SIHATI media. Students look enthusiastic when accessing digital flashcard features, learning videos, songs, and games, and interactive evaluations. In addition, students seem to be more active in paying attention to the material, following the pronunciation of *Hijaiyah* letters, and participating in learning activities. These findings show that SIHATI media is able to increase student involvement during the learning process.

In the Evaluation Stage, the evaluation of the effectiveness of learning media is carried out through the implementation of the initial test (pre-test) and final test (post-test) for students. The pretest is used to determine the initial ability of students to read *Hijaiyah* letters before the use of media, while the posttest aims to evaluate the extent of skill improvement after the learning period. The results of the two tests were then analyzed using the N-Gain formula to get a more accurate and objective picture of learning improvement. The results of the calculation are presented in the following table:

³¹Yhurico Alam Syah dan Rachmad Syarifudin Hidayatullah, "Pengembangan Media Pembelajaran Interaktif Google Sites untuk Meningkatkan Hasil Belajar Siswa SMK," *JVTE: Journal of Vocational and Technical Education* 6, no. 1 (2024): 56–65, <https://doi.org/10.26740/jvte.v6n1.p56-65>; Bob SyahrialGhozali, Supeno, dan Mohammad Imam Farisi. "Pengembangan E-Modul Berbasis Google Sites Untuk Meningkatkan Kemampuan Penalaran Berbasis Bukti Dalam Pembelajaran IPA Di Sekolah Dasar." *ELSE (Elementary School Education Journal)* 8, no. 2 (2024): 368–78. <https://doi.org/10.30651/else.v8i2.22631>.

Table 5. N-Gain Pre-Test and Post-Test Calculation Results

Description	Results
Average Pre-Test Score	53
Average Post-Test Score	84
Number of Students	28
Number of Students Who Completed	24
Number of Students Who Did Not Complete	4
Average N-Gain	0,6
Student Initial Ability	0–80
Student Final Ability	80–100

**Picture 2. Comparison Diagram of Pre-test and Post-Test Students**

The results of the evaluation showed that the use of SIHATI had a positive impact on students' ability to read *Hijaiyah* letters. The average pretest score of 53 increased to 84 on the posttest, with an increase of about 31 points. The normalized gain value of 0.6 indicates an increase in the medium category. This shows that SIHATI not only improves students' general understanding but also helps improve their basic abilities. Significant improvements were also seen in students with low initial ability, where their scores increased from the range of 0–40 to 80–100. This confirms that the effectiveness of learning media is not only measured by the average class, but also by its ability to help students who are experiencing difficulties.

Overall, the increase in the score from 53 to 84 shows that SIHATI is able to overcome the main problem found at the analysis stage, namely the difficulty of students in distinguishing similar *Hijaiyah* letters. This medium serves as an effective visual scaffolding and structured exercise, especially for students with low initial ability. The ability to distinguish letter shapes is an important basis in learning *Hijaiyah* reading, which will further support the ability to pronounce, read, and string letters. Therefore, the increase in learning outcomes not only reflects an increase in grades but also shows an increase in students' religious literacy competencies. These findings are in line with previous research that showed that interactive digital media such as videos, flashcards, and multimedia can improve literacy through increased motivation, attention, and visual clarity.³²

³²Dilla Apriliyanti, Afnan Rosyidi, dan Siti Rihastuti, "Aplikasi Media Pembelajaran Interaktif Pengenalan Huruf *Hijaiyah* Berbasis Multimedia," In Prosiding Seminar Nasional Amikom Surakarta 2, no. November (2024): 928–37, <https://ojs.amikomsolo.ac.id/index.php/semnasa/article/view/539>; Rahmatia, Endang Ruswiyani, dan Abd. HakimNaba, "Melatih Kemampuan Anak Mengenal Huruf *Hijaiyah* Melalui Video Pembelajaran Menggunakan Aplikasi Inshot Di Rumah TK Nuryani Ishak." ISOLEK: Jurnal Pendidikan, Pengajaran, Bahasa, dan Sastra 2, no. 2 (2024): 318–26. <https://doi.org/10.59638/isolek.v2i2.312>.

The improvement in the ability to read *Hijaiyah* letters is suspected to be influenced by the use of media that combines text, images, audio, video, and interactive activities in one learning platform. The presentation of diverse materials helps students understand the shape and sound of *Hijaiyah* letters in a more concrete and meaningful way. In addition, the digital flashcard feature and interactive exercises provide students with the opportunity to repeat independently so as to help strengthen their memory of the shape and pronunciation of *Hijaiyah* letters.

Educational game activities and interactive quizzes are also able to increase students' motivation to learn so that they are more involved in the learning process.³³ This finding is in line with previous research that shows that game-based educational media is able to increase students' interest in learning *Hijaiyah* letter material.³⁴ In addition, interactive digital learning media can help elementary school students recognize and distinguish *Hijaiyah* letters more easily through attractive visual presentations.³⁵ Thus, the effectiveness of SIHATI media is not only shown by the increase in the value of student learning outcomes, but also by the increase in student involvement, motivation, and ability to recognize and distinguish *Hijaiyah* letters during the learning process.

CONCLUSION

Based on the results of the research that has been carried out, there are two main conclusions that can be drawn according to the purpose of the research. First, related to the development of learning media, web-based SIHATI (Interactive *Hijaiyah* System) media has been successfully developed through the ADDIE model, which includes the analysis, design, development, implementation, and evaluation stages. This media integrates various learning features in one platform, including digital flashcards, material flipbooks, learning videos, songs and games, and interactive evaluations. The validation results showed that SIHATI media obtained a score of 92.5% from material experts and 97.5% from media experts, both of which are in the very valid category. Thus, SIHATI media is declared feasible and ready to be used as a learning medium to read *Hijaiyah* letters for grade I elementary school students. Second, related to the effectiveness of media, the use of SIHATI in the learning process has been proven to be effective in improving the ability to read *Hijaiyah* letters of grade I elementary school students. This is evidenced by the increase in the average student score from 53 in the pretest to 84 in the posttest, with an N-Grain value of 0.6, which is included in the medium category. In addition, as many as 24 out of 28 students managed to achieve learning completeness after using SIHATI media. The results of the observation also showed that students showed enthusiasm and active involvement during the learning process. Thus, SIHATI's web-based learning media not only meet feasibility standards theoretically, but are also empirically proven to be able to significantly improve students' *Hijaiyah* reading skills. This research still has limitations in the number of subjects and the

³³Asshalikha et al., "The Influence of Monopoly Media on The Students' Interest in Learning Process of Elementary School." AR-RIAYAH: Jurnal Pendidikan Dasar 9, no. 1 (2025): 97–104. <https://doi.org/10.29240/jpd.v9i1.12837>.

³⁴Aan YusufKhunaifi dan Melda Yuniar, "Penggunaan Media Game Anak Edukasi *Hijaiyah* untuk Keterampilan Minat Baca Mata Pelajaran Pendidikan Agama Islam Siswa Kelas I SD Negeri 01 Tugu Harum." JUPIN: Jurnal Pendidikan Islam Nusantara 1, no. 2 (2022): 100–114. <https://jsr.unu.ac.id/index.php/JUPIN/article/view/124/64>.

³⁵Novandaru Achnivandra DwiFortuna dan Hardika Dwi Hermawan, "Media Pembelajaran Huruf *Hijaiyah* untuk Siswa Sekolah Dasar berbasis Augmented Reality." Edumatic: Jurnal Pendidikan Informatika 7, no. 1 (2023): 88–97. <https://doi.org/10.29408/edumatic.v7i1.13373>.

duration of implementation, so further research is expected to test this medium on a wider scope of subjects and develop more innovative and interactive learning features.

REFERENCES

- Aeni, Ani Nur, Dian Nurlela, S Sartika, dan Trisni Karo Ulina br G. "Development of Google Sites-Based Taurba Website Media in Learning Islamic Religious Education in Elementary Schools." *Al-Ulum Jurnal ...* 12, no. 3 (2025): 241–51. <https://doi.org/10.31102/alulum.12.3.2025.241-251>.
- Aeni, Ani Nur, Ira Nurlina, Putri Dwi Masya, dan Rosi Aenirrisallah. "Pengembangan Media Website Edukatif CEBAN (Cekatan Membaca Al-Qur'an) Pada Pembelajaran PAI Kelas 4 SD." *Genealogi PAI Jurnal Pendidikan Agama Islam* 11, no. 02 (2024): 2654–3575. <https://doi.org/10.32678/genealogipai.v11i2.10069>.
- Apriliyanti, Dilla, Afnan Rosyidi, dan Siti Rihastuti. "Aplikasi Media Pembelajaran Interaktif Pengenalan Huruf *Hijaiyah* Berbasis Multimedia." In *Prosiding Seminar Nasional Amikom Surakarta* 2, no. November (2024): 928–37. <https://ojs.amikomsolo.ac.id/index.php/semnasa/article/view/539>.
- Asshalikha, Nailil Muna, Ngabiyanto Ngabiyanto, Ellianawati Ellianawati, Bambang Subali, dan Nuni Widiarti. "The Influence of Monopoly Media on the Students' Interest in Learning Process of Elementary School." *AR-RIAYAH: Jurnal Pendidikan Dasar* 9, no. 1 (2025): 97–104. <https://doi.org/10.29240/jpd.v9i1.12837>.
- Dio, Yerima Alfa, dan Ekohariadi Ekohariadi. "Pengembangan Media Pembelajaran Berbasis Web Dalam Meningkatkan Efektivitas Pembelajaran Pemrograman Web (Studi Kasus : Smks Semen Gresik)." *IT-Edu : Jurnal Information Technology and Education* 6, no. 2 (2021): 139–52. <https://doi.org/10.26740/it-edu.v6i3.46366>.
- Fitriyani, Ayu Lintang, dan MintoHari. "Pengembangan Media Game Undercover Berbasis Android Untuk Meningkatkan Hasil Belajar Materi Tata Surya Mata Pelajaran Ipa Kelas Vi Sekolah Dasar." *Jpgsd* 08, no. 01 (2020): 1–12. <https://ejournal.unesa.ac.id/index.php/jurnal-penelitian-pgsd/article/view/32962>.
- Fortuna, Novandaru Achnivandra Dwi, dan Hardika Dwi Hermawan. "Media Pembelajaran Huruf *Hijaiyah* untuk Siswa Sekolah Dasar berbasis Augmented Reality." *Edumatic: Jurnal Pendidikan Informatika* 7, no. 1 (2023): 88–97. <https://doi.org/10.29408/edumatic.v7i1.13373>.
- Ghozali, Bob Syahrial, Supeno, dan Mohammad Imam Farisi. "Pengembangan E-Modul Berbasis Google Sites Untuk Meningkatkan Kemampuan Penalaran Berbasis Bukti Dalam Pembelajaran IPA Di Sekolah Dasar." *ELSE (Elementary School Education Journal)* 8, no. 2 (2024): 368–78. <https://doi.org/10.30651/else.v8i2.22631>.
- Guntara, Yudi. "Normalized gain: ukuran keefektifan treatment," 2020. <https://doi.org/10.13140/RG.2.2.27603.40482>.
- Hartari, Rika Oktavia, dan Galih Mahardika Christian Putra. "Development of Web Based Learning to Improve Science Learning Outcome of Student in Elementary School." *Jurnal Teknologi Pendidikan* 27, no. 1 (2025): 230–44. <https://doi.org/10.21009/JTP2001.6>.
- Hendra, Hery Afriyadi, Tanwir, Noor Hayati, Supardi, Sinta nur Laila, Yana Fajar Prakasa, Rahmat Putra Ahmad Hasibuan, dan Achmad Dzulfikri Almufti Asyhar. *Buku Media Pembelajaran Berbasis Digital*. Diedit oleh E Efitra dan S Sepriano. PT. Sonpedia Publishing Indonesia, 2023.

- Hikmah, An Wariyatul, Nono Mulyono, dan Yusuf Hidayat. “Analisis Implementasi Kurikulum Merdeka Dalam Pembelajaran Pendidikan Agama Islam di Sekolah Dasar.” *Jurnal Intisabi* 2, no. 2 (2025): 176–93. <https://doi.org/10.61580/itsb.v2i2.69>.
- Iklima, Lutvita Dwi, dan Indra Yustiana. “Aplikasi Belajar Huruf *Hijaiyah* Berbasis Web TPA Uswatun Hasanah.” *Jurnal Computer Science and Information Technology (CoSciTech)* 3, no. 3 (2022): 364–70. <https://doi.org/10.37859/coscitech.v3i3.4386>.
- Islanda, Ela, dan Deni Darmawan. “Pengembangan Google Sites Sebagai Media Pembelajaran untuk Meningkatkan Prestasi Belajar Siswa T.” *Jurnal Teknodik* 27, no. 1 (2023): 51–62. <https://doi.org/10.32550/teknodik.vi.991>.
- Khunaifi, Aan Yusuf, dan Melda Yuniar. “Penggunaan Media Game Anak Edukasi *Hijaiyah* untuk Keterampilan Minat Baca Mata Pelajaran Pendidikan Agama Islam Siswa Kelas I SD Negeri 01 Tugu Harum.” *JUPIN: Jurnal Pendidikan Islam Nusantara* 1, no. 2 (2022): 100–114. <https://jsr.unuha.ac.id/index.php/JUPIN/article/view/124/64>.
- Mustika, Fanisya Alva, Yuni Wibawanti, dan Juliana Juliana. “Pembuatan Dan Pelatihan Media Interaktif Mengenal Huruf *Hijaiyah*.” *Jurnal PkM Pengabdian kepada Masyarakat* 5, no. 2 (2022): 118. <https://doi.org/10.30998/jurnalpkm.v5i2.8795>.
- R, Siti Nur Paridotul, Rusi Rusmiati Aliyyah, dan Wilis Firmansyah. “Pengembangan Media Pembelajaran Sembia Sosis Berbasis Android Untuk Siswa Sekolah Dasar.” *AR-RIAYAH: Jurnal Pendidikan Dasar* 6, no. 1 (2022): 69–87. <https://doi.org/10.29240/jpd.v6i1.4024>.
- Rahmadayanti, Dewi, dan Agung Hartoyo. “Potret Kurikulum Merdeka, Wujud Merdeka Belajar di Sekolah Dasar.” *Jurnal Basicedu* 6, no. 4 (2022): 7174–87. <https://doi.org/10.31004/basicedu.v6i4.3431>.
- Rahmatia, Endang Ruswiyani, dan Abd. Hakim Naba. “Melatih Kemampuan Anak Mengenal Huruf *Hijaiyah* Melalui Video Pembelajaran Menggunakan Aplikasi Inshot Di Rumah TK Nuryani Ishak.” *ISOLEK: Jurnal Pendidikan, Pengajaran, Bahasa, dan Sastra* 2, no. 2 (2024): 318–26. <https://doi.org/10.59638/isolek.v2i2.312>.
- Rustandi, Adi, dan Rismayanti. “Penerapan Model ADDIE dalam Pengembangan Media Pembelajaran di SMPN 22 Kota Samarinda.” *Jurnal Fasikom* 11, no. 2 (2021): 57–60. <https://doi.org/10.37859/jf.v11i2.2546>.
- Salsabila, Fadillah, dan Aslam. “Pengembangan Media Pembelajaran Berbasis Web Google Sites pada Pembelajaran IPA Sekolah Dasar.” *Jurnal Basicedu* 5, no. 5 (2021): 3(2), 524–32. <https://doi.org/10.31004/basicedu.v6i4.3155>.
- Saputri, Dewi Puput. “Penerapan Video Pembelajaran Interaktif Huruf *Hijaiyah* Pada Anak Usia Dini.” *Jurnal Pendidikan dan Teknologi Indonesia* 3, no. 8 (2023): 329–36. <https://doi.org/10.52436/1.jpti.95>.
- Sardi, Ahmad Idrus, Asmaji Muchtar, dan Toha Makhshun. “Flipbook Digital Dalam Pembelajaran PAI: Inovasi Media Pembelajaran Kreatif Untuk Meningkatkan Minat dan Hasil Belajar Siswa.” *Jurnal Literasiologi* 13, no. 2 (2025): 182–201. <https://doi.org/10.47783/literasiologi.v13i2.924>.
- Silfiani, Humaira, Bunga Syafiq Munira, Vivin Ardiyanti, Dwi Novita Sari, dan Futry Ayu Lestari Lestari. “Implementing Google Sites to Improve Elementary School Students’ Understanding of Science Concepts.” *AR-RIAYAH: Jurnal Pendidikan Dasa* 9, no. 2 (2025): 121–42. <https://doi.org/10.29240/jpd.v9i2.13874>.

- Sutama, Sutama, dan Ira Nur Fajriani. "Media Pembelajaran E-Learning Berbasis WEB di Tingkat Sekolah Menengah Kejuruan." *Jurnal VARIDIKA* 33, no. 2 (2022): 129–40. <https://doi.org/10.23917/varidika.v33i2.15330>.
- Syah, Yhurico Alam, dan Rachmad Syarifudin Hidayatullah. "Pengembangan Media Pembelajaran Interaktif Google Sites untuk Meningkatkan Hasil Belajar Siswa SMK." *JVTE: Journal of Vocational and Technical Education* 6, no. 1 (2024): 56–65. <https://doi.org/10.26740/jvte.v6n1.p56-65>.
- Tiarani, Siti Dhinda, Yalvema Miaz, Muhammadiyah, dan Ulfia Rahmi. "Pengembangan Media Pembelajaran Digital Berbasis Google Sites dengan Model ADDIE Pada Materi Pendidikan Pancasila di Sekolah Dasar." *Jurnal Inovasi Pendidikan dan Pembelajaran Sekolah Dasar* 9, no. 1 (2025): 47–61. <https://doi.org/10.24036/jippsd.v9i1>.
- Widianto, Edi, Alfina Anisnai'l Husna, Annisa Nur Sasami, Erza Fitri Rizkia, Fitriana Kusuma Dewi, dan Shindy Aura Intan Cahyani. "Pemanfaatan Media Pembelajaran Berbasis Teknologi Informasi." *Journal of Education and Teaching* 2, no. 2 (2021): 213. <https://doi.org/10.24014/jete.v2i2.11707>.
- Z, Rifa Setiani, dan Erwin Rahayu Saputra. "Pengembangan Media Pembelajaran Berbasis ICT pada Mata Pelajaran Agama Islam Materi Huruf *Hijaiyah* dan Harakatnya." *Jurnal Basicedu* 6, no. 1 (2022): 552–63. <https://doi.org/10.31004/basicedu.v6i1.1947>.