

THE EFFECT OF H5P-BASED LUMI EDUCATION ON ISLAMIC CULTURAL HISTORY LEARNING OUTCOMES OF GRADE V MI STUDENTS

Nurun Nafisah Indah Qomari¹, Ruqoyyah Nafisah²

^{1,2} Universitas Nurul Jadid Paiton Probolinggo
Contributor email: nurunnafisahiq@gmail.com

Abstrak

Pembelajaran Sejarah Kebudayaan Islam (SKI) di madrasah masih menghadapi berbagai tantangan, antara lain terbatasnya penggunaan media interaktif, bahan ajar yang cenderung bersifat naratif, serta rendahnya keterlibatan siswa. Materi Kekhalifahan Ali bin Abi Thalib secara khusus membutuhkan media yang mampu menyajikan tokoh sejarah, urutan peristiwa, dan nilai-nilai keteladanan dengan cara yang lebih menarik. Penelitian ini mengkaji pengaruh Lumi Education berbasis H5P terhadap hasil belajar siswa kelas V MI Darul Hikmah Al-Fatimiyah. Penelitian ini menggunakan pendekatan kuantitatif dengan desain pre-eksperimental berbentuk one-group pretest-posttest design dan melibatkan 24 siswa. Data dikumpulkan melalui instrumen pretest dan posttest, kemudian dianalisis menggunakan statistik deskriptif, uji normalitas Shapiro-Wilk, serta uji Wilcoxon Signed-Rank karena data tidak berdistribusi normal. Hasil penelitian menunjukkan bahwa nilai rata-rata meningkat dari 86,04 pada pretest menjadi 94,79 pada posttest, dengan hasil uji Wilcoxon yang menunjukkan perbedaan yang signifikan secara statistik ($p = 0,001$). Nilai rank-biserial correlation sebesar 0,860 menunjukkan ukuran efek yang besar, sedangkan Hodges-Lehmann Estimate menunjukkan peningkatan tipikal sekitar 10 poin. Temuan ini menunjukkan bahwa Lumi Education berbasis H5P berkontribusi positif terhadap hasil belajar SKI, meskipun interpretasi hasil perlu dilakukan secara hati-hati karena desain penelitian satu kelompok, jumlah sampel yang terbatas, dan cakupan materi yang terbatas.

Kata Kunci: Lumi Education, H5P, Hasil Belajar, SKI, Madrasah Ibtidaiyah

Abstract

The teaching of Islamic Cultural History (SKI) in madrasah settings continues to face persistent challenges, including limited interactive media, predominantly narrative instructional materials, and low student engagement. The topic of the Caliphate of Ali ibn Abi Talib, in particular, demands media that can present historical figures, sequences of events, and exemplary values in a more engaging manner. This study investigates the effect of H5P-based Lumi Education on the learning outcomes of fifth-grade students at MI Darul Hikmah Al-Fatimiyah. Employing a quantitative approach with a pre-experimental one-group pretest-posttest design, the study involved 24 students. Data were collected through pretest and posttest instruments and

analyzed using descriptive statistics, the Shapiro-Wilk normality test, and the Wilcoxon Signed-Rank Test due to non-normal data distribution. Results indicated that the mean score increased from 86.04 at pretest to 94.79 at posttest, with the Wilcoxon test yielding a statistically significant difference ($p = 0.001$). A rank-biserial correlation of 0.860 indicated a large effect size, while the Hodges-Lehmann Estimate suggested a typical improvement of approximately 10 points. These findings demonstrate that H5P-based Lumi Education positively contributes to SKI learning outcomes, though interpretations should remain cautious given the single-group design, limited sample size, and restricted content scope.

Keywords: Lumi Education, H5P, Learning Outcomes, SKI, Madrasah Ibtidaiyah

A. INTRODUCTION

21st-century learning demands the integration of technology into the learning process and the development of critical skills such as critical thinking, creativity, communication and collaboration (4Cs) (Abdurahman et al., 2024). In line with the views of Muali & Karlina (2025), technology brings about significant changes in various aspects, including education. This is all the more relevant given the characteristics of learners, the majority of whom belong to Generation Alpha. According to Santoso (2024, as cited in Zalia et al., 2026) Generation Alpha is a generation that has been deeply immersed in technology from an early age. They possess high learning abilities and are accustomed to interacting with digital devices even before their verbal skills have fully developed. This makes them digital natives who are directly connected to the global flow of information, whilst also being vulnerable to widespread and unfiltered external influences. This situation means that learners have a strong affinity for digital media but, at the same time, require guidance to direct technology towards meaningful learning activities.

In the context of primary education, the use of learning resources is important because Students are at a stage of development that requires visual stimulation, hands-on activities, and learning experiences that go beyond the verbal. Learning resources serve not only as tools delivering content but also as a means to enhance Students' attention, engagement and understanding. This is important because the study of Islamic Cultural History (abbreviated in Bahasa as SKI) involves numerous historical events, figures, places, dates, and exemplary values that need to be understood in a coherent sequence, rather than merely memorised.

In reality, SKI teaching still faces various challenges. Several studies indicate that SKI teaching is often hampered by limited visual aids, a lack of contextualisation of the material, and the suboptimal use of digital technology in the learning process; the use of lecture-based methods and low student self-confidence can lead to students becoming passive in SKI lessons (Habibullah et al., 2025; Munawir & Istiqomah, 2024). This is reinforced by findings from Anjani & Udin (2025) that 65% of students remain passive during SKI learning due to the use of the lecture method, limited visual aids, and low student confidence in speaking. A similar situation was found at MI Darul Hikmah Al-Fatimiyah. Based on indications of problems in the field, teachers still face difficulties in determining SKI learning media that suit students' needs. Learning still relies heavily on narrative teaching materials or worksheets, so students

tend to simply read, listen to the teacher's explanations, and memorise information. Consequently, student engagement in learning is not yet optimal. Students appear passive, lack motivation to participate, and struggle to understand material that includes historical figures' names, event dates, event sequences, and the values of Islamic history.

This issue highlights that SKI learning requires teaching materials that are more interactive, efficient, and capable of providing an actively engaging learning experience. H5P-based digital learning materials are a particularly relevant alternative, as they enable teachers to present content as interactive videos, quizzes, drag-and-drop exercises, fill-in-the-blanks, true/false questions, and other activities that provide students with immediate feedback. H5P itself is widely used in learning because it provides interactive content that allows students to interact with the material in a more personalised way. Jacob & Centofanti, (2024) states that H5P-based interactive learning resources provide students with the opportunity to engage with the material in a more personalised way, although its impact on learning outcomes still needs to be tested in a contextual manner.

One platform for developing H5P-based learning materials is Lumi Education. This platform enables teachers to create and deliver H5P content more efficiently, allowing them to develop interactive learning materials tailored to the subject matter. The use of Lumi Education is supported by the Cognitive Theory of Multimedia Learning proposed by Mayer (2024). This theory explains that learners process information through two different channels, namely the verbal channel and the visual channel, and obtain meaningful learning through active cognitive processing. Therefore, interactive media that combine text, images, video, and other interactive elements can help students select, organize, and integrate information more effectively. In learning the history of Islamic culture (SKI), visual features such as interactive videos, images, and other visual representations can help present historical events and concepts that are often abstract, making them more concrete and easier for students to understand. Not only that, feedback has an important role in supporting the achievement of learning outcomes. Mandouit & Hattie (2023) stated that effective feedback helps learners understand their current level of achievement, identify mistakes, and determine the next steps that need to be taken to achieve learning goals. Through a variety of interactive activities, such as quizzes, drag-and-drop exercises, and interactive videos with automatic feedback, H5P gives students the opportunity to actively engage in the learning process while receiving direct feedback. Thus, the integration of multimedia content, interactivity, and timely feedback through Lumi Education is expected to improve students' understanding and learning outcomes in SKI learning.

Based on these theoretical foundations, the use of Lumi Education has the potential to improve the quality of learning processes and outcomes. This is supported by previous studies demonstrating the effectiveness of Lumi education across various learning contexts. Lestari et al., (2026) found that H5P-based Lumi Education has the potential to improve elementary school students' motivation, engagement, and critical thinking skills through a variety of interactive features, such as quizzes, drag-and-drop, and interactive videos. This is confirmed by the results of the study Anggreini et al. (2025), which found that the application of IT-based learning media using Lumi Education was able to improve the learning outcomes of junior high school students, as shown by an increase in the average score of the posttest compared to

the pretest. Jaenudin et al., (2025) Also found that there is significance of interactive videos using Lumi Education on student learning outcomes. Meanwhile, the improvement of learning outcomes in the control class is not as great as that in the experimental class. Thus, the use of Lumi Education-based interactive videos has proven effective in improving student learning outcomes in differentiated learning. The effectiveness of Lumi Education in improving learning outcomes is also reinforced by research Aryfien et al., (2025), which shows that the use of interactive learning multimedia from Lumi Education results in higher cognitive learning outcomes compared to conventional learning on human respiratory system materials. Meanwhile, Pratiwi & Putra, (t.t.) developed a virtual Tour Maps media based on Lumi Education and found that the media was effective in improving the IPAS learning outcomes of elementary school students. The study's results indicate that Lumi Education has great potential as an interactive learning medium to improve learners' engagement and learning outcomes.

Previous studies were generally conducted on general subjects, such as science and other learning materials in elementary and secondary schools. In addition, most of the research focuses on improving critical thinking skills, developing learning media, and assessing the effectiveness of Lumi Education in learning outcomes. Research specifically examining the use of H5P-based digital teaching materials through Lumi Education for the SKI subject in Madrasah Ibtidaiyah remains very limited. In fact, the characteristics of SKI material that contain events, figures, and historical chronology require an interactive, visual presentation to be more easily understood by learners. Therefore, this study was conducted to assess the effect of using H5P-based digital teaching materials through Lumi Education on student learning outcomes in Islamic Cultural History at Madrasah Ibtidaiyah.

Based on the description, research into the effect of Lumi Education's use of H5P on the SKI learning outcomes of Class V MI Students is important. The urgency lies in addressing real problems in the field, namely SKI learning, which still tends to be narrative and passive, limited learning time, and the need for teachers to use more interactive and efficient media. This study aims to analyze the effect of using H5P-based Lumi Education on the learning outcomes of SKI students in Class V at Madrasah Ibtidaiyah. This study not only aims to explore new media but also to quantitatively test whether the use of H5P-based Lumi Education affects students' SKI learning outcomes. Thus, the results of this study are expected to provide an empirical basis for teachers to choose SKI learning media that better suit the needs of Class V MI Students.

B. RESEARCH METHOD

This study employed a quantitative approach using a pre-experimental design, specifically a one-group pretest-posttest design. This design was chosen because the study involved only one group of subjects without a control group; the aim was to examine differences in learning outcomes before and after the intervention. The participants consisted of 24 fifth-grade students at MI Darul Hikmah Al-Fatimiyah. Subjects in this study were 24 students of class VA MI Darul Hikmah Al-Fatimiyah, selected through purposive sampling. VA class selection is based on the premise that the entire series of studies, from pretest to treatment to posttest, can be implemented optimally in the class to obtain complete data for analysis. Research subjects were given a pretest to measure outcomes prior to treatment. Then the

subjects were given treatment in the form of SKI learning, with sub-chapters on the Caliphate of Ali bin Abi Talib, using the Lumi Education interactive book. Afterward, the subjects were given a posttest to measure the final learning outcomes.

The research procedure consisted of three stages: preparation, implementation, and final analysis. The preparation stage involved initial observation, development of H5P-based Lumi Education resources, design of learning outcome assessment instruments, and validation of these instruments. Instrument assessment of learning outcomes consists of 20 multiple choice questions developed by researchers based on learning objectives and indicators of the topic "Khilafah Ali bin Abi Talib" on the subject of Islamic Cultural History (SKI) Madrasah Ibtidaiyah Class V. Prior to its execution, the instrument undergoes content validation by the SKI teacher to ensure the suitability of the questions to the learning objectives, content material and level of understanding of the students. The implementation stage began with the administration of a pre-test, was followed by instruction using Lumi Education, and concluded with a post-test. The final stage involved processing and analysing the pre-test and post-test scores. The data obtained are quantitative and were therefore analysed using the JASP programme. The prerequisite test used is the Shapiro-Wilk normality test. If the data are normally distributed ($p > 0.05$), the hypothesis test uses the Paired Sample T-Test. However, if the data is not normally distributed ($p < 0.05$), the hypothesis test uses the non-parametric Wilcoxon Signed-Rank Test. This analysis aims to examine the difference in pre-test and post-test scores following the use of Lumi Education.

C. RESULTS AND DISCUSSION

The study's results were derived from pre-test and post-test data collected from Year 5 students at MI Darul Hikmah Al-Fatimiyah. The research subjects were a single class of 24 students who had complete pre-test and post-test data. All students received instruction using Lumi Education based on H5P, which incorporated an interactive book feature. The pre-test and post-test results yielded the following data:

Table 1. Descriptive Statistics

	PRE-TEST	POST-TEST
Mean (arithmetic)	86.04	94.79
Std. Deviation	18.18	9.943
Shapiro-Wilk	0.759	0.603
P-value of Shapiro-Wilk	< .001	< .001
Minimum	25.00	60.00
Maximum	100.0	100.0

Based on the descriptive statistics for the pre-test and post-test data on the caliphate of Ali ibn Abi Talib, an overview of learning outcomes before and after the application of the Lumi Education treatment was obtained. In the table, the mean pre-test score was 86.04, with a standard deviation of 18.18, a minimum of 25.00, and a maximum of 100.00. These values indicate variation in students' initial abilities prior to the intervention. The average post-test

score after using Lumi Education increased to 94.79, with a standard deviation of 9.943, a minimum of 60.00, and a maximum of 100.00. This indicates an 8.75-point increase in the average learning outcome after using Lumi Education.

Table 2. Student Post-Test Score Categories

Category	Number Of Students	Presentation
Increased	15	62,5%
Fixed	6	25,0%
Decreased	3	12,5%
Total	24	100%

The average pretest score is relatively high (86.04), indicating that students had fairly good initial knowledge before the treatment. This condition is possible because the material studied, namely the policy of the Caliph Ali bin Abi Talib, is a sub-chapter of the Caliph Ali bin Abi Talib material previously studied in several meetings, so that students are familiar with some of the concepts measured in the pretest. This condition indicates the possibility of a ceiling effect, namely, limited room for further increases in scores because students' initial ability is relatively high. Seeing this, the effectiveness of Lumi Education needs to be interpreted carefully. Even so, the analysis of individual score changes showed that 15 of 24 students (62.5%) had improved grades, 6 (25%) had fixed grades, and only 3 (12.5%) had decreased grades. These findings show that most students still achieve improved learning outcomes after using Lumi Education, despite having relatively high initial ability.

A normality test was conducted using the Shapiro-Wilk test prior to hypothesis testing. Table 1 shows that the normality test for the pre-test data yielded a Shapiro-Wilk statistic of 0.759 and a p-value of $p < 0.001$. The post-test data showed a Shapiro-Wilk statistic of 0.603 with the same p-value. Since the expected value is $p < 0.05$, the pre-test and post-test data are not normally distributed. Therefore, the hypothesis testing was continued using the non-parametric Wilcoxon Signed-Rank Test as a substitute for parametric hypothesis tests such as the paired-sample t-test, which could not be used because one of its assumptions was not met. According to (Wiliyanti et al., 2025; Zulkipli et al., 2024), non-parametric statistics form part of inferential statistics. Non-parametric tests are simpler to perform as they do not require the data to be normally distributed. Consequently, non-parametric statistical tests are also often referred to as distribution-free methods

Table 3. Non-parametric Hypothesis Testing

Measure 1	Measure 2	W	z	df	p
PRETEST	- POSTTEST	12.00	-3.201		.001

Note. Wilcoxon signed-rank test.

Table 4. Table Effect Size

Measure 1	Measure 2	W	z	d	p	Hodges-Lehmann Estimate	Rank-Biserial Correlation	SE Rank-Biserial Correlation
PRETEST	- POSTES	12.00	-3.201		.001	-10.00	-0.860	0.262

Note. Wilcoxon signed-rank test.

As mentioned above, since the pretest and posttest data were not normally distributed, the hypothesis test was conducted using the nonparametric Wilcoxon Signed-Rank Test. This test was chosen as it is the appropriate non-parametric equivalent of the Paired Sample T-Test for comparing two paired data sets (pretest and posttest) within a single group of subjects. Based on the results of the analysis using the JASP programme, a W statistic of 12.00 and a z-value of -3.201 were obtained. A negative z-value indicates that the post-test scores tend to be higher than the pre-test scores. The p-value obtained was 0.001. Since $p = 0.001$ is significantly smaller than the significance level $\alpha = 0.05$ ($0.001 < 0.05$), the null hypothesis (H_0), which states that there is no difference between the pre-test and post-test results, is rejected, and the alternative hypothesis (H_a), which states that there is a difference, is accepted.

To determine the extent to which the use of Lumi Education influences improvements in learning outcomes, an effect size calculation was performed using the Rank-Biserial Correlation. The results of the analysis showed a rank-biserial correlation value of -0.860. The negative sign in this value merely indicates the direction of the difference (the post-test score was higher than the pre-test score), whilst the effect size is 0.86. Based on the criteria for interpreting effect sizes, a value of 0.86 falls into the 'large effect' category as it exceeds 0.5. Furthermore, the Hodges-Lehmann Estimate yielded -10.00, indicating that the estimated median difference between the pre-test and post-test is 10 points. In other words, typically, students' scores increased by around 10 points after using Lumi Education. These findings statistically demonstrate that the use of H5P-based Lumi Education has a significant, highly effective impact on SKI learning outcomes for Year 5 MI students.

The results of this study indicate that the use of H5P-based Lumi Education has a positive impact on the Islamic Studies learning outcomes of Year 5 MI Students regarding the subject of the Caliphate of Ali bin Abi Thalib. This is evident from the increase in average scores from the pre-test to the post-test and the results of the Wilcoxon test, which show a significant difference between learning outcomes before and after the intervention. By using H5P-based Lumi Education, SKI learning, which was previously narrative, becomes more interactive. In the material on the Caliphate of Ali bin Abi Talib, visual features such as images and the gradual presentation of the material in the interactive book help students understand the characters, events, and policies of the caliphate more concretely. The material previously presented as long texts can be learned through a combination of visual elements and interactive activities, reducing the dominance of textual narratives that often cause students to feel bored quickly. In addition, interactive quizzes and exercises with live feedback encourage students to actively participate in the learning process, check their understanding independently, and immediately identify their mistakes so they can improve their understanding at a moment's

notice. This is in line with Aqmarina & Susilo (2025) and Prasetyo et al., (2023) that interactive learning media affect the increase in learning motivation and learning outcomes and can be an alternative to improve the quality of learning in the digital era.

These findings support the research by Anggreini et al. (2025), Jaenudin et al. (2025), which demonstrates that interactive media using Lumi Education positively impacts student learning outcomes. More specifically, this study was applied to the SKI subject, covering the topic of the Caliphate of Ali bin Abi Thalib at the primary school level. Analysis of individual score changes also showed that, among the 24 students in the study, 15 (62.5%) improved, 6 (25%) maintained, and only 3 (12.5%) declined. These findings indicate that the improvement in learning outcomes is not only evident in the average class but also experienced by most students individually after using Lumi Education. The Hodges-Lehmann estimate of 10 points also showed that students typically improved by about 10 points after treatment. In practical terms, these findings suggest that SKI teachers can use media, especially Lumi Education, to reduce the dominance of lectures and narrative teaching materials. This Media can help teachers present Islamic history material in a more structured, interesting, and easier-to-understand way for students.

Although there was an improvement in learning outcomes following the use of the H5P-based Lumi Education platform, this study has several limitations that require consideration. The average pretest score of students, which was relatively high (86.04), is also an important finding in this study. These conditions indicate that students already have a fairly good initial knowledge of the material studied. This is possible because the Caliph Ali bin Abi Talib Policy material is part of the Caliph Ali bin Abi Talib material introduced in previous studies. As a result, the space for increasing the score becomes more limited (ceiling effect), so the improvement observed after treatment needs to be interpreted carefully. Nevertheless, most students still showed improved learning outcomes after using Lumi Education. This study used only one group of subjects without a control group, so the improvement in learning outcomes cannot be fully compared with conventional learning. Therefore, the results of this study are more accurately interpreted as differences in learning outcomes before and after the use of Lumi Education, not as absolute evidence that the media is more effective than other learning methods. The number of research subjects is still limited to 24 students, so the results of the study cannot be generalized to all students of madrasah ibtidaiyah. Third, this study was limited to one material, so the effectiveness of Lumi Education based on H5P for other SKI materials still requires further testing. Students' pretest scores are already high enough to be a significant concern, as the space for improving grades becomes more limited.

D. CONCLUSION

Based on the research findings, it can be concluded that the use of H5P-based Lumi Education with the Interactive Book feature contributes positively to improving the SKI learning outcomes of Year 5 Students at MI Darul Hikmah Al-Fatimiyah on the subject of the Caliphate of Ali bin Abi Thalib. This improvement in learning outcomes is evident from the difference in pre-test and post-test scores after the Students participated in learning using this medium. The results of the Wilcoxon Signed-Rank Test indicate a significant difference between learning outcomes before and after the intervention, with a large effect size. These

findings suggest that H5P-based Lumi Education can help deliver SKI lessons that are more interactive, structured, and engaging, so that students do not merely receive material in a narrative form but are also actively involved through visual activities, quizzes, and immediate feedback.

The results of this study suggest that SKI teachers in madrasah ibtidaiyah can utilise H5P-based Lumi Education as an alternative digital learning medium for presenting Islamic history material in a more meaningful way. However, this study has several limitations, namely the use of a single group without a control group, a limited sample size, application to a single subject, and students' pre-test scores being relatively high, thereby limiting the scope for improvement in learning outcomes. Therefore, future research is recommended to employ an experimental design with a control group, involve a larger sample size, extend the implementation period, and examine other variables such as learning motivation, student engagement, and retention of understanding, so that the impact of H5P-based Lumi Education can be assessed more comprehensively.

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