

Interactive E-Book Media Development for Enhancing Learning Outcomes in Akidah Akhlak Education in the 5.0 Era

Ery Dwika Andriani^{1✉}, Taufik Siraj²

^{1,2}PGMI, Universitas Islam Negeri Sunan Ampel Surabaya, Indonesia

Email: erydwikaandriani@gmail.com

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Abstract

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Corresponding author

This study aims to develop an interactive e-book based on the Book Creator application to improve student learning outcomes in the subject of Akidah Akhlak in grade II at Siti Aminah Elementary School in Surabaya. The main problems are the suboptimal use of technology in learning and low student interest in learning. This study employs the Research and Development model ADDIE, which includes analysis, design, development, implementation, and evaluation. The instruments used include validation sheets, learning outcome tests, and practicality questionnaires. The validation results indicate that the interactive e-book is highly valid, with an average percentage exceeding 90%. The validation results showed that the e-book is highly valid with an average percentage 91,61%. The trial results indicated a significant improvement in learning outcomes with a high effectiveness category ($N\text{-Gain} > 0.7$). The e-book was also deemed highly practical by both teachers and students. In conclusion, the interactive e-book is effective and suitable for use in learning. It is recommended that teachers continue to innovate with interactive learning technology to enhance the quality of education.

Keywords: Interactive E-Book Media, Society 5.0 Era, Educational Technology.

Abstrak

Penelitian ini bertujuan untuk mengembangkan buku elektronik interaktif berbasis aplikasi Book Creator guna meningkatkan hasil belajar siswa pada mata pelajaran Akidah Akhlak di kelas II Sekolah Dasar Siti Aminah di Surabaya. Masalah utama yang dihadapi adalah penggunaan teknologi yang kurang optimal dalam pembelajaran dan minat siswa yang rendah terhadap pembelajaran. Penelitian ini menggunakan model Penelitian dan Pengembangan (R&D) ADDIE, yang meliputi analisis, desain, pengembangan, implementasi, dan evaluasi. Alat yang digunakan meliputi lembar validasi, tes hasil belajar, dan kuesioner kepraktisan. Hasil validasi menunjukkan bahwa e-book interaktif ini sangat valid dengan persentase rata-rata melebihi 90%. Hasil validasi menunjukkan bahwa e-book sangat valid dengan persentase rata-rata 91,61%. Hasil uji coba menunjukkan peningkatan signifikan dalam hasil belajar dengan kategori efektivitas tinggi ($N\text{-Gain} > 0,7$). E-book juga dianggap sangat praktis oleh guru dan peserta didik. Kesimpulannya, e-book interaktif efektif dan cocok untuk digunakan dalam pembelajaran. Disarankan agar guru terus berinovasi dengan teknologi pembelajaran interaktif untuk meningkatkan kualitas pendidikan.

Kata Kunci: Media E-Book Interaktif, Era Society 5.0, Teknologi Pendidikan

INTRODUCTION

The development of science and technology in the 5.0 era has led to the advancement of education in Indonesia (Hidayat et al., 2023). Education is one of the key aspects in the development of a country. In this digital era, the use of technology in the learning process has become increasingly important. Along with technological developments, traditional learning media that are static in nature are slowly turning into more active and interactive media (Ratnasari, 2024). Teachers have an important role in preparing learning that is in line with technological advances. In addition, learning activities are often inactive and teacher-centered, which results in students lacking enthusiasm (Nawangasasi, 2025) and feeling bored, causing their learning outcomes to decline. One form of learning media that can provide a more interesting and effective learning experience is interactive e-books.

Currently, the target of education is Generation Alpha students. Generation Alpha is often referred to as a generation that is highly dependent on technology. Therefore, with this high dependence, an educational touch is needed. Technology-integrated learning media is believed to be one of the alternatives that teachers can use to facilitate students. Thus, introducing technology to students as early as possible is the task of education, so that the graduates produced can meet the needs of today's world of work (Wardani et al., 2021).

The use of e-books is a form of learning media that aims to increase students' interest and involvement in the learning process. With the rapid development of technology, e-books have now become a significant element in the world of education. The use of e-books or digital books in the learning process is considered to be able to help improve student learning outcomes (Susila et al., 2024). Learning outcomes can be defined as tangible behavioral changes demonstrated by students after participating in a learning process that is carried out in accordance with the educational objectives of the school (Adawiyah et al., 2024).

One of the efforts that teachers can make is to develop interactive media based on e-books. Interactive e-books are one of the innovations of learning media integrated with technology. An e-book is a book that is programmed into a computer so that it can visualize the material in visual form Hanikah et al., (2022), making it easier for students to understand the learning material and attracting their attention. E-books are digital books that can be accessed through various devices such as smartphones, laptops, tablets, and so on (Pratiwi, 2024).

Although various studies have discussed various approaches in the development of digital teaching materials, there are still shortcomings in studies that specifically explore the use of certain platforms, such as Book Creator, which has advantages in creating interactive digital books. Research on the integration of Book Creator in Akidah Akhlak learning, especially in the lower grades, is still limited. Therefore, the main objective of this study is to develop Book Creator-based digital teaching materials aimed at improving student learning outcomes in Akidah Akhlak subjects. In addition,

this study also aims to analyze the effectiveness of using Book Creator in supporting the improvement of student learning outcomes.

Based on observations and interviews conducted by researchers at Siti Aminah Elementary School, Surabaya with Akidah Akhlak teachers, it was found that teachers at Siti Aminah Elementary School, Surabaya were still not optimally utilizing the facilities and infrastructure provided by the school and were still using conventional methods during the learning process, which made students less interested in learning, especially in Akidah Akhlak. Therefore, the researcher used E-book learning media to develop interactive E-books to improve learning outcomes in the subject of Akidah Akhlak in the current 5.0 era.

Theoretical Concept

In this concept the teacher play a strategic role in teaching Akidah Akhlak, particularly in shaping the character and moral values of students. The task of a teacher is not only to deliver lesson material, but also to set an example in their daily behavior and attitude. With the development of technology in the digital age, teachers are required to have the ability to integrate digital devices and media into the learning process to make it more effective and interesting. As explained by Ulya, (2022), the use of technology such as artificial intelligence, the Internet of Things, and various digital media is an important step in making the teaching and learning process more interactive and relevant to the needs of the times.

The use of technology-based learning media, such as interactive e-books, has been proven to increase student motivation and learning outcomes. Nawangsasi, (2025) shows that interactive e-books in the subject of Akidah Akhlak can present material in a more interesting and easy-to-understand way, so that students are more active and involved in the learning process.

The integration of technology in Akidah Akhlak learning not only modernizes teaching methods but also brings religious values closer to students in a way that suits the learning style of the digital generation. Pebrina & Afrilia, (2024) in their research developed interactive video-based learning media using the Book Creator application for material on reprehensible morals, and the results showed a significant increase in student activity and understanding. In addition, the Society 5.0 era, which emphasizes collaboration between humans and technology, also encourages Islamic education to be more adaptive and relevant. According to Yusgiantara (2024), Islamic education in this era must utilize technological developments as a means to strengthen Islamic values, not to shift their essence.

According to Maharani in a book written by Hendrawati (2024), interactive e-books have advantages in terms of presenting content that can be clicked on, responded to directly by users, and linked to various additional sources of information. With all these advantages, the development of interactive e-book media is the right step in

responding to the challenges of learning Akidah Akhlak today, as well as an effort to improve student learning outcomes effectively and efficiently.

METHODS

The study in this research is based on a research approach using the development method or Research and Development. The development method or Research and Development is a research method used to produce a specific product and assess its effectiveness. The model used in this study is ADDIE, which consists of five stages, starting with analysis, design, development, implementation, and evaluation (Damayanti, 2024). Development research is a systematic study process of the design, development, and evaluation of learning programs, processes, and products that are required to meet the aspects of validity, practicality, and effectiveness (Okpatrioka, 2023).

This research was conducted in May 2025 and took place in the second grade of Siti Aminah Elementary School in Surabaya. The population in this study consisted of 27 students selected using purposive sampling. Data collection was carried out using several instruments, namely an expert validation sheet involving teaching material experts, subject matter experts, and Akidah Akhlak subject teachers to assess the feasibility of interactive e-books. In addition, test questions were also used to measure student competency achievement, as well as questionnaires to obtain feedback from teachers and students on the use of interactive e-books as teaching materials.

Table 1 explains the validation sheet served to measure the validity of the interactive e-book based on three main criteria, namely content suitability, language use, and appearance or presentation. Validity analysis was carried out by converting the assessment results into percentages using the following formula:

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

Explanation:

P = Eligibility percentage

$\sum x$ = Total assessment score from validators

$\sum xi$ = Maximum score that can be obtained

100 = Constant for converting to percentage form

Table 1. Validation Criteria for Interactive E-Book Teaching Materials

No	Score	Qualification
1	100% - 82%	Highly valid
2	81% - 63%	Valid
3	62% - 44%	Less valid
4	43% - 25%	Not valid

Source: (Febriyanti & Rahayu, 2022)

After the validation data showed that the product was suitable for use, a limited trial of the product was conducted using a one group pretest-posttest research design. This design aimed to determine whether there was an increase in student learning outcomes after using the teaching materials. The test scores obtained before and after the treatment were then analyzed to measure the effectiveness of interactive e-books as a learning medium. Effectiveness analysis was carried out using the following N-Gain formula:

$$N - Gain = \frac{\text{posttest score} - \text{pretest score}}{\text{maksimum score} - \text{pretest score}} \times 100\%$$

The percentage increase obtained from the pretest and posttest results was analyzed based on the category of student competency level. The criteria for grouping student competencies were determined based on the N-Gain score range, which was classified on Table 2.

Table 2. N-Gain Score Criteria

Presentage	Criteria	Effectiveness Level
1	N-gain > 0.7	High Effective
2	0.3 ≤ N-gain ≤ 0.7	Moderate Fairly effective
3	N-gain < 0.3	Low Less effective

The practicality of interactive e-books was measured by distributing questionnaires to teachers and students. The responses were then analyzed to determine the extent to which the teaching materials were considered practical in their use. The questionnaire data were analyzed using the following percentage formula: (Irsalina & Dwiningsih, 2018).

$$\text{Score} = \frac{\text{Total score obtained}}{\text{Maximum possible score}} \times 100\%$$

Table 3 shows the scores from the teacher and student response questionnaires were then averaged.

Table 3. The Criteria For Teacher and Student Responses

Percentage	Qualification
80% - 100%	Very Good
66% - 79%	Good
56% - 65%	Faily Good
41% - 55%	Not so good
<40%	Not Good

Sumber : (Arikunto, 2013)

RESULTS AND DISCUSSION

In this research and development aims to develop interactive e-books on Akidah Akhlak material, specifically for second-grade students. The initial stage began with

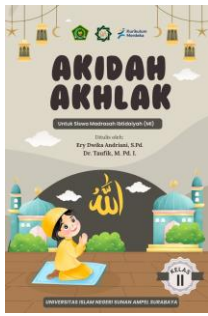


field observations at Siti Aminah Elementary School, Surabaya, conducted through interviews with Akidah Akhlak subject teachers.

In the analysis stage, a study was conducted on the curriculum, material concepts, and teaching materials used. The results of the analysis showed that the school had implemented the Merdeka Curriculum. Based on the results of interviews with Akidah Akhlak teachers, it was found that students still had difficulty understanding the material, given the broad and complex scope of the topics.

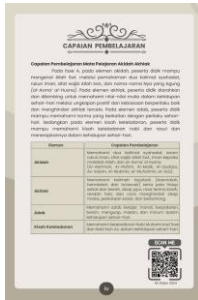
The teaching materials used so far are still limited to PowerPoint presentations and other learning resources such as Student Worksheets (LKPD) and textbooks. Based on theoretical studies and field observation results, a concept analysis was conducted to develop relevant achievement indicators for the learning of Akidah Akhlak material.

At the product design stage, teaching materials were designed in the form of interactive e-books. The initial design was done using the Canva platform to produce attractive visuals that were in line with the material requirements. Furthermore, the design results were developed further through a coding process on the BookCreator application so that the interactive e-books could be easily accessed via devices such as smartphones and laptops. Table 4 shows the interactive e-books contents and display.

Table 4. Interactive E-book Display

No	Display	Description
1		Layout is the initial display of the interactive e-book's opening page, designed to give users an attractive and informative first impression.
2		Foreword: This section contains the objectives of compiling this e-book and the hope that it will support the learning process.
3		Table of Contents display, an opening page that contains the sequence of the e-book's contents to facilitate navigation for users.

4



Learning Achievement Display Displays the targeted competencies after learning, equipped with a QR code that links to the Director General's Decree as a reference.

5



Overview of Concepts, Objectives, and Approaches This section contains definitions of materials, learning objectives, and approaches used in accordance with the principles of the Merdeka Curriculum.

6



The cover divider serves as an introductory page for changing learning materials in the Grade 2 Semester 1 Akidah Akhlak e-book.

7



This concept map briefly illustrates the main material and the relationships between concepts that will be studied in each lesson.

8



Each lesson is accompanied by videos and audio to support audiovisual learning styles, making it easier for students to understand the lesson content.

9



Each lesson is accompanied by a self-assessment quiz to measure student understanding, as well as a summary to reinforce the material.

During the development stage, the e-book design that had been compiled then underwent a validation process by three parties, namely teaching material experts, subject matter experts, and Akidah Akhlak teachers from Siti Aminah Elementary School, Surabaya. This validation process aimed to assess the suitability of the e-book as teaching material based on three aspects of assessment, namely content suitability, language use, and appearance or presentation. The validation process was carried out by three validators consisting of teaching material experts (V1), subject matter experts (V2), and Akidah Akhlak teachers (V3). The aspects assessed included content suitability, language, and appearance/presentation. The results of the assessment are presented in table 5.

Table 5. Validation Results of Interactive E-Book

Scoring aspect	V1	V2	V3	Average	Notes
Content Value	85,71%	91,43%	95,00%	90,71%	SV
Language	88,00%	92,00%	94,00%	91,33%	SV
Display	90,00%	96,67%	91,67%	92,78%	SV
Average				91,61%	SV

Based on the validation results summarized in the previous table, it is known that the average score for the three aspects reached 91.61% with a category of highly valid, because the value was above $P > 80\%$. This shows that interactive e-books are very suitable for use in teaching Aqidah Akhlak. In terms of content feasibility, the average score was 90.71%, which also falls into the highly valid category. This result indicates that the interactive e-book teaching materials have been systematically compiled in accordance with the Basic Competencies (KD), indicators, and learning objectives that must be achieved by students.

Before conducting the effectiveness analysis, a limited trial of the developed interactive e-book was carried out. This trial used a one-group pretest-posttest design involving 27 second-grade students at Siti Aminah Elementary School, Surabaya. The students were given a pretest to determine their initial abilities before using the

interactive e-book, then given a posttest after learning using this media. The purpose of this test was to determine the extent of learning improvement after using the interactive e-book. The difference between the pretest and posttest scores was analyzed using the N-Gain formula, the results of which were used as the basis for determining the level of effectiveness of the learning media developed. The N-Gain calculation results for each student are presented in the table 6.

Table 6. The N-Gain Calculation Results

No	Pre-test	Post-test	N gain
1	50	85	0.70
2	40	80	0.67
3	40	80	0.75
4	60	95	0.89
5	55	85	0.73
6	45	90	0.80
7	50	85	0.63
8	55	80	0.56
9	48	88	0.77
10	52	92	0.83
11	46	82	0.67
12	51	86	0.71
13	58	88	0.71
14	53	87	0.72
15	49	89	0.78
16	44	81	0.66
17	50	88	0.76
18	54	86	0.70
19	47	84	0.70
20	56	90	0.77
21	60	91	0.78
22	51	85	0.69
23	53	88	0.74
24	45	80	0.64
25	55	90	0.78
26	48	83	0.67
27	49	87	0.73
Average N-gain			0.72
Category			Effective

Based on the results of effectiveness calculations using a one group pretest-posttest design approach on 27 students, an average N-Gain value of 0.72 was obtained. This value was calculated by comparing the pretest and posttest scores of each student using the N-Gain formula, which is the difference between the posttest and pretest scores divided by the difference between the maximum score and the pretest score. The average score of 0.72 falls into the high category according to the learning effectiveness

classification criteria. This means that there was a significant increase in learning outcomes after students used interactive e-books as a learning medium for the Akidah Akhlak subject.

The evaluation stage was carried out by distributing questionnaires to teachers and students. Based on the evaluation results, the interactive e-book teaching material was declared very suitable for implementation in the learning process of the Akidah Akhlak subject. This was evidenced by the average results of the student response questionnaire, which reached 82.20%, and the teacher response, which reached 95.55%, both of which were in the very good category. This shows that interactive e-books have a high level of practicality and facilitate students in the learning process (Sari, 2023).

This improvement shows that the use of Book Creator-based interactive e-books can have a positive impact on student understanding. The presentation of material accompanied by interactive elements such as videos, sounds, and self-evaluation quizzes encourages more active and enjoyable learning engagement. Thus, interactive e-books are not only effective in improving learning outcomes but can also be an innovative alternative in learning that suits the characteristics of the alpha generation who are accustomed to technology. According to Aisyah & Sucahyo, (2022), the use of e-book media can improve students' understanding of concepts. Interactive e-book-based teaching materials are considered more practical and easier to use in the learning process than conventional printed books. Therefore, interactive e-books are considered suitable for use as learning media because they contribute to improving student competence.

CONCLUSION

This study shows that the development of interactive e-books based on the Book Creator application in the subject of Aqidah Akhlak has proven to be effective in improving student learning outcomes. Based on the validation results by teaching material experts, subject matter experts, and subject teachers, interactive e-books obtained an average feasibility score of 91.61%, which is classified as highly valid. In addition, the results of the effectiveness test through N-Gain analysis of the pretest and posttest scores showed a significant increase with an average N-Gain of 0.72, which is classified as high. This proves that interactive e-books can be an attractive, accessible, and relevant learning tool in line with technological developments in the Society 5.0 era. The use of interactive e-books also received positive responses from students and teachers, in terms of visual appearance, material presentation, and ease of use. These e-books are able to accommodate the learning styles of the digital generation of students and assist teachers in delivering material in a more systematic and interactive manner. Therefore, interactive e-books based on Book Creator are recommended as an alternative learning medium that can be widely applied in Akidah Akhlak learning and other subjects. This research is expected to serve as a basis for the development of more

innovative and adaptive digital learning media to meet the needs of students in the future.

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