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The Development of Pop-Up Book-Based Learning Media for Hajj and Umrah Procedures

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ABSTRACT

The urgency of this research is to develop a pop-up book as a learning media to support the teaching of Hajj and Umrah procedures. Based on initial interviews conducted by researchers at several high schools in Central Bangka Regency with teachers of religious education, there are no adequate facilities and infrastructure for practicing Hajj rituals for Hajj material. However, Hajj is one of the obligatory acts of worship for Muslims and must be known by high school students who are Muslim, just as they must know other obligatory acts of worship such as prayer and fasting. This study adopts a research and development (R&D) method using the Dick and Carey model, which includes; (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation. Validation from media experts indicated that the developed media is valid and feasible for use. The results of this study showed a significant increase in students' learning outcomes based on the average of comparison scores between pretest 29.5 and posttest 56.25. In addition, the media was rated effective in enhancing students' motivation and understanding of the material. Therefore, the pop-up book is considered an effective learning medium for teaching the Hajj and Umrah procedures.

1. Introduction

Learning media facilitates interaction between educators and students, making learning activities more effective and efficient. Media is very important in the development of the learning process because it can increase students' interest in learning, students can also observe something directly without having to imagine it, and information in the learning process can be repeated as needed. The skill of teacher innovation in developing learning media is needed (Muti'ah et al., 2024). Media can also be useful for teachers to deliver material. With the right media, the learning process can take place effectively and learning objectives can be easily achieved (Ulfa & Nasryah, 2020).

One of the functions of learning media is to facilitate understanding of religious concepts. Apart from media being used as a means of transmitting information (Masrukhin et al., 2024). One example is understanding the concept of Hajj and its procedures. Hajj is one of the obligatory acts of worship for all Muslims. Hajj is one of the teaching materials for Islamic Religious Education in 10th grade high school. The Hajj material involves a lot of practice and is quite complex, so it takes longer than other Islamic Religious Education materials (Sihotang et al., 2025). In addition, Hajj is a type of worship that is not performed in everyday life, making it easy for students to forget its contents. Therefore, educators need to provide learning media that can help them deliver Hajj material easily and enable them to understand their students and motivate them to learn (Iffah et al., 2019; Agustina et al., 2025)

The issue behind this research is that, based on initial interviews conducted by researchers at several high schools in Central Bangka Regency with teachers of religious education, there are no adequate facilities and infrastructure for practicing Hajj rituals for Hajj material (Fuad & Ghufon, 2014). Several teachers stated that Hajj material is only taught through lectures or watching videos, and even then, the videos are “makeshift” or only available if the facilities are adequate, so students are not very interested or enthusiastic during the lessons. Based on the initial interviews conducted by the researcher, it was concluded that the factor causing students to be less interested and unenthusiastic was the monotonous teaching methods used in teaching Hajj material.

The researchers chose pop-up books as the medium to be developed in Hajj and Umrah learning for several reasons, including: (1) The location of the school where the research will be conducted does not have adequate facilities such as good internet signal, (2) If the researchers create audiovisual media that can be played without using an internet signal, not all schools have projectors and speakers that are suitable and sufficient for use during learning. In fact, according to several teachers interviewed, finding and setting up projectors and speakers before conducting lessons takes a long time, while the lesson time for Islamic Religious Education is only 2 hours. (3) Hajj is a form of worship that is not performed every day and is easily forgotten by students (Iffah et al., 2019), so students need media that is practical, efficient, easy to carry, and can be reopened after several years of storage (Nabila et al., 2021), (4) If the media is in the form of an Android based application, users must have a smartphone. The researchers considered several impacts of using applications in Islamic Religious Education lessons, namely: (a) Lack of focus during learning because smartphones make students easily distracted by notifications on their smartphones, (b) Lack of social interaction during learning, (c) Cheating during learning evaluations (Yayasan Bangun Kecerdasan Bangsa, 2019).

The development of pop-up books as learning media on the procedures for Hajj and Umrah is not only intended to convey technical information, but can also be a means of instilling the values of religious moderation (Nurwahida et al., 2026). The integration of these values is important to ensure a holistic understanding of worship that is not extreme. Some values of religious moderation that are relevant

to the results of this study are (1) Tolerance, where the media can show the diversity of practices and schools of thought in the implementation of Hajj and Umrah that are still within the corridor of Sharia law. For example, showing minor differences in procedures recognized by different scholars and emphasizing that these differences are a blessing. (2) Balance, which promotes a balanced understanding of the ritual (fiqh) and spiritual (philosophical meaning) aspects of Hajj and Umrah, in addition to explaining the steps of tawaf and sa'i. the media in this study can also include explanations of the meaning behind each movement or symbolism of the Ka'bah, the Black Stone, and other holy places, to avoid empty ritualism. (3) Oriented towards benefit, the learning media produced by this research can underline the main objectives of the Hajj and Umrah pilgrimages, namely to draw closer to Allah, increase piety, and strengthen Islamic brotherhood, rather than merely fulfilling an obligation. This research based learning media displays illustrations of positive interactions between pilgrims from various countries, or moral messages about the importance of maintaining cleanliness and order in the Holy Land as a form of obedience and mutual concern.

From the above description, pop-up books on the procedures for Hajj and Umrah are considered important learning media. This media is also needed to support public high schools that do not have facilities to support Hajj practice so that there is an increase in students' understanding of the Hajj procedures. The pop-up book learning media that will be developed is only a supplement to learning. It does not replace Islamic Education teachers as the main source of learning in achieving learning objectives. With the development of this media, it is hoped that it will facilitate and increase the interest and enthusiasm of students in learning about the procedures for performing the Hajj. Therefore, this study aims to develop and evaluate the feasibility, practicality, and effectiveness of pop-up book learning media on Hajj and Umrah procedures in high schools in Central Bangka Regency.

2. Methodology

This study uses Dick and Carey's research and development model. The Dick and Carey Development Model was chosen because it describes the development steps in more detail than other development models and is systematically structured to produce a product (Dick et al., 2001). The reason the researcher chose the Dick and Carey model is that this method is product oriented and tests the effectiveness of the product. The purpose of this development research is to develop a pop-up book learning medium about the Hajj for high school students in Central Bangka Regency. The steps in this study used the ADDIE Development Model developed by Dick and Carey (Dick et al., 2001) as shown in Table 1.

Table 1. Research Steps

Development Steps		Description
<i>Analysis</i>	1.	The learning media plan to be developed

	2. Identifying learning media characteristics that are appropriate for students; learning objectives, learning content identification, learning condition identification, and delivery plans in learning
Design	1. Designing the concept for pop-up book learning media 2. Creating storyboards and scripts 3. Consulting with media experts and subject matter experts
Development	1. Develop the learning media tools (materials) needed for development. 2. Based on the product design results, at this stage, begin creating learning media that fits the learning media model structure. 3. Create instruments to measure product performance. 4. Validate the product with subject matter experts and media experts.
Implementation	1. Testing the pop-up book media product that has been developed. The testing plan will be carried out in two meetings. 2. Reviewing the product development objectives, student progress, and initial feedback from the evaluation process.
Evaluation	1. Distribute questionnaires to students and teachers after using the developed product. The questionnaire results are used to measure the achievement of product development objectives. 2. Identify the factors that enable students to achieve good results.

3. Results and Discussion

Product Design Development Stage (Analysis)

The product design stage was the initial activity in this research. This stage was carried out in May, and the results obtained from this series of activities were as follows:

a. The scope of the material developed was the procedures for the Hajj and Umrah pilgrimages. This was based on identifying the needs that were problematic in school learning. The needs in school learning are for media that is practical, easy to use, and does not require a long time to prepare for use. After determining the type of media to be developed, the scope of the material was identified. The scope of the material developed is the procedures for Hajj and Umrah that must be understood by secondary school students, such as understanding the procedures, movements, and recitations in performing Hajj and Umrah.

b. Student Character Identification

Identification obtained from interviews and observations conducted with high school teachers in Central Bangka yielded the following student identification results: The students' ages range from 15 to 17 years old. In terms of smartphone usage, almost all students use smartphones, but only a few have high end specifications. Smartphones are rarely used for learning because they do not have data plans or only purchase data plans for WhatsApp. In addition, it is also known that knowledge of the procedures for Hajj and Umrah in Central Bangka high schools is still very low. Almost all high school students observed by the researcher

did not know the procedures for Hajj and Umrah. This low level of knowledge is due to:

- 1) The teacher has never explained this material because it requires a special session using specific media, while the school has limited media resources.
- 2) The material on Hajj and Umrah is easy to forget because it is not like prayer or fasting, which are performed regularly.
- 3) For students, the material on Hajj and Umrah is not important to understand because they feel they will not be performing it in the near future and it may still be a long time away. However, Hajj is one of the obligatory acts of worship that must be performed when certain criteria are met, so students who are Muslim must know the pillars, procedures, and recitations.

c. Collection of Teaching Materials

- 1) The teaching materials in this media are obtained from books. The source is the book Tatacara Haji dan Umroh (Procedures for Hajj and Umrah).

d. Brainstorming (Initial Idea Discussion)

The activities carried out at this stage are discussions with teachers at Central Bangka High School, colleagues at IAIN Syaikh Abdurrahman Siddik Bangka Belitung, and consultations with media experts. The topics discussed include:

- 1) Media display.
- 2) Paper type, paper size, color selection, and composition of text and images for the pop-up book.

e. Planning documents

- 1) Product display plan

The display plan is established to facilitate the design of learning media. With this display plan in place, the types of media elements used in the product will be more appropriate and neatly organized. Once the display plan has been established, the next step is to search for each of the planned media elements.

- 2) Sketches/Temporary Replicas of Pop-Up Book Media on Hajj and Umrah Procedures

1. Design

Here is the design for the pop-up book media on the procedures for Hajj and Umrah that has been agreed upon. The design of pop-up book media using Adobe Photoshop. The design has been approved by learning media experts, with some revisions such as color selection of colors and font size, as shown in Figure 1



Figure 1. Pop Up Book Design

The types of activities carried out at this stage are:

a. Product Specification Creation

Product specifications are a series of details and technical information that describe the characteristics, features, and attributes of a product. These specifications cover various aspects that are important to ensure that the product meets the needs and expectations of users or customers.

1) Cover

The pop-up book cover consists of a front cover and a back cover. The front cover consists of the title “Hajj Procedures” and an image of a Muslim man and woman in front of the Kaaba, as shown in Figure 2.

Title: “Hajj and Umrah Procedures”

Theme: Islamic Religious Education and Morality



Figure 2. Cover

2) Contents

The contents of the pop-up book include

- a. Pages 1 and 2: Understanding Hajj
- b. Pages 3 and 4: Performing Hajj in the Holy Land
- c. Pages 5 and 6: Preparations Before Departing for Hajj
- d. Pages 7 and 8: Pillars and Obligations of Hajj
- e. Pages 9 and 10: Ihram and Wukuf
- f. Pages 11 and 12: Tawaf
- g. Pages 13 and 14: Sa'i
- h. Pages 15 and 16: Tahallul
- i. Pages 17 and 18: Prohibitions During Hajj, Wisdom and Benefits of Hajj

3) Target Users

Age : 15–17 years old

Education Level : High School/Vocational School

4) Target Users

5) Content

Content : Information about the procedures for Hajj and Umrah, as shown in Figure 3



Figure 3. Content

Language : Indonesian

6) Design and Structure

Attractive layout with contrasting colors and large typography as seen in Figure 4



Figure 4. Design and Structure

7) Materials and Quality

Thick glossy paper and durable color printing

8) Book Size

A5, thick pages

9) Page Thickness

18 pages

10) Interactive Elements

This media has interactive elements as 3D pop-ups, flaps, pull tabs as seen in Figure 5

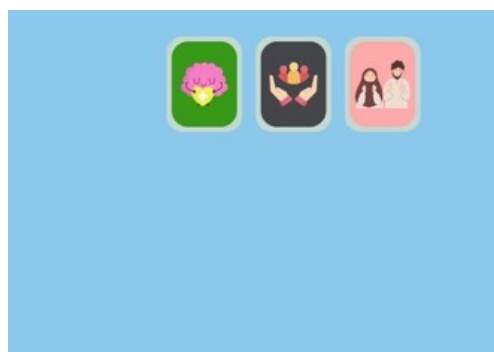


Figure 5. Interactive Elements

b. Material Script Design

To prepare the text to be included in this learning media, Microsoft Word 2013 word processing software was used. The purpose of using Microsoft Word 2013 to produce the text was to ensure that the writing style in the media followed the existing rules.

c. Instrument Development

The pre-test instrument was designed to measure students' understanding of the procedures for the Hajj and Umrah before using the pop-up book learning media. This pre-test consisted of multiple choice and short answer questions to assess students' prior knowledge of this topic.

Pre-Test Results Analysis

a. Total Score: The sum of all questions.

b. The score measured by understanding category as shown in Table 2:

Table 2. Understanding Categories

Score	Understanding Category
86 – 100	Very Good Understanding
69 – 85	Good Understanding
60 – 69	Fair Understanding
<60	Needs Improvement

This pre-test will help measure students' initial understanding of the procedures for Hajj and Umrah before they learn using pop-up books. After learning with pop-up books, the pre-test results can be compared with the post-test results to evaluate the effectiveness of the learning media used.

2. Development

The following is an example of an instrument for developing pop-up books. This instrument covers several aspects that need to be evaluated, such as design, content,

quality, and learning effectiveness. Pop-up Book Media Development Instrument, To ensure that the developed pop-up book media meets the expected quality standards, the researchers designed a set of development instruments covering several assessment aspects. These aspects include design, content, technical quality, and learning effectiveness. Each aspect was translated into measurable indicators to evaluate the feasibility of the developed media. The detailed instrument indicators are presented in Tables 3-6.

1) Design Aspects

The design aspect instrument was used to assess layout, illustration arrangement, creativity, and color suitability of the developed media, as presented in Table 3:

Table 3. Product Development Instrument Design Aspects

Layout	Is the page layout easy to understand? (Excellent / Good / Fair / Poor)
	Are the illustrations and text neatly arranged? (Excellent / Good / Fair / Poor)
Creativity	Is the pop-up design attractive and creative? (Excellent / Good / Fair / Poor)
	Is the use of color appropriate and appealing? (Excellent / Good / Fair / Poor)

2) Content Aspects

The content aspect was evaluated to determine the suitability of the material, accuracy of information, and clarity of language used in the media, as shown in Table 4:

Table 4. Product Development Instrument Content Aspects

Material Suitability	Is the material presented in line with the learning objectives? (Excellent / Good / Fair / Poor)
	Does the content of the story support learning? (Excellent / Good / Fair / Poor)
Accuracy of Information	Is the information presented accurate and not misleading? (Very Good / Good / Fair / Poor)
	Is the language used easy for the target audience to understand? (Excellent / Good / Fair / Poor)

3) Quality Aspects

The quality aspect assessment focused on material durability, construction techniques, and safety of the pop-up book media, as presented in Table 5:

Table 5. Product Development Instrument Quality Aspects

Materials and Techniques	Are the materials used high quality and durable? (Very Good / Good / Fair / Poor)
Safety	Is the pop-up construction technique neat and sturdy? (Very Good / Good / Fair / Poor)
	Are the materials used safe for children? (Very Good / Good / Fair / Poor)
	Are the pop-up parts not easily damaged or dangerous? (Very Good / Good / Fair / Poor)

4) Aspects of Learning Effectiveness

The effectiveness aspect measured students' interest and understanding after using the media, as shown in Table 6:

Table 6. Product Development Instrument for Learning Effectiveness

Increased Interest in Reading	Can this pop-up book increase children's interest in reading? (Very Good / Good / Fair / Poor)
	Does the child seem enthusiastic when using the pop-up book? (Very Good / Good / Fair / Poor)
Understanding the Material	Do children find it easier to understand the material with the help of pop-up books? (Very good / Good / Fair / Poor)
	Do pop-up books help with remembering information? (Very Good / Good / Fair / Poor)

The image below shows the final result of the pop-up book that has been printed and ready to use in schools. The final result of the pop-up book media is a 3D printed A5-sized book with foldable elements, as seen in Figure 6.

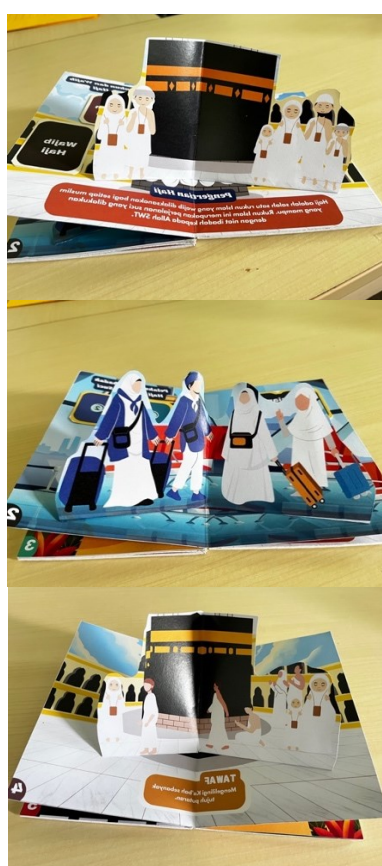


Figure 6. Final Pop-Up Book

3. Implementation

This stage is the stage of implementing the media that has been developed in trials in grade XI at SMKN 1 Simpangkatis, SMKN 1 Sungai Selan, SMAN 1 Sungai Selan, and SMAN 2 Sungai Selan. Before conducting the trials, the researchers first validated the media. This validation included validation by subject matter experts

and media experts. The results of this validation showed that the media was classified as good and was suitable for use in the pilot test process.

The next step was for the researchers to conduct a small group trial with five students and then give them a questionnaire about the use of media in the learning process. Based on the small group trial, a questionnaire was given to find out about the media that had been developed. The overall results of the questionnaire showed that this media was of very good quality and suitable for use in the learning process. Based on the results of the validation and assessment from the small scale class, there were several suggestions for improvement from the validators on several parts of the media, and the researchers made these improvements. Assessments from validators and product users show that the developed media falls into the good category and is ready for implementation in further trials. However, the verification process revealed several suggestions for improving the product. Researchers chose to make improvements to the product based on the suggestions made by validators. The changes to the media based on validators are as follows:

- 1) The font size has been slightly increased.
- 2) The content folds are not too long.
- 3) The number of pages has been increased so that each page is not too crowded.
- 4) There was insufficient content on the pillars of Hajj. Content on the pillars of Hajj has been added.
- 5) The colors of the pop-up book have been simplified.

4. Evaluation

At this stage, researchers used pre-tests and post-tests to measure the evaluation results of students in large classes to determine the extent of student learning outcomes before and after using the media. The evaluation used instruments consisting of multiple choice questions and short answer questions to assess students' initial knowledge and knowledge after using the media on this topic. To measure students' learning outcomes after the implementation of the developed media, pre-tests and post-tests were conducted in several schools. The evaluation results from each school are presented in Tables 7–10: The evaluation results of students at SMKN 1 Simpangkatis are presented in Table 7.

Table 7. Evaluation Results of Students at SMKN 1 Simpangkatis

NO.	NAME	PRETEST	POST TEST
1	A	40	60
2	B	30	50
3	C	30	65
4	D	35	60
5	E	30	45
6	F	45	45
7	G	40	60
8	H	30	70
9	I	45	80
10	J	30	60
AVERAGE		35.5	59.5

The evaluation results of students at SMKN 1 Sungai Selan are presented in Table 8

Table 8. Evaluation Results of Students at SMKN 1 Sungai Selan

NO.	NAME	PRETEST	POST TEST
1	A	25	60
2	B	20	50
3	C	15	45
4	D	20	35
5	E	25	55
6	F	20	60
7	G	35	55
8	H	15	40
9	I	40	60
10	J	20	40
AVERAGE		23.5	50

The evaluation results of students at SMAN 1 Sungai Selan are presented in Table 9

Table 9. Evaluation Results of Students at SMAN 1 Sungai Selan

NO.	NAME	PRETEST	POST TEST
1	A	40	60
2	B	30	55
3	C	30	60
4	D	35	40
5	E	30	60
6	F	25	55
7	G	20	45
8	H	15	50
9	I	20	70
10	J	25	65
AVERAGE		27	56

The evaluation results of students at SMAN 2 Sungai Selan are presented in Table 10

Table 10. Evaluation Results of Students at SMAN 2 Sungai Selan

NO.	NAME	PRETEST	POST TEST
1	A	45	65
2	B	40	60
3	C	30	70
4	D	45	65
5	E	30	60
6	F	20	45
7	G	35	75
8	H	15	50
9	I	40	65
10	J	20	40
AVERAGE		32	59.5

After obtaining the posttest scores, this Table 11 shows the results of the comparison before and after using pop up books:

Table 11. Comparison of Students Evaluation Results

NO	NAME	SCORE		RESULT
		PRE	POST	
1	A	40	60	Increased
2	B	30	50	Increased
3	C	30	65	Increased
4	D	35	60	Increased
5	E	30	45	Increased
6	F	45	45	Unchanged
7	G	40	60	Increased
8	H	30	70	Increased
9	I	45	80	Increased
10	J	30	60	Increased
11	K	25	60	Increased
12	L	20	50	Increased
13	M	15	45	Increased
14	N	20	35	Increased
15	O	25	55	Increased
16	P	20	60	Increased
17	Q	35	55	Increased
18	R	15	40	Increased
19	S	40	60	Increased
20	T	20	40	Increased
21	U	40	60	Increased
22	V	30	55	Increased
23	W	30	60	Increased
24	X	35	40	Increased
25	Y	30	60	Increased
26	Z	25	55	Increased
27	AA	20	45	Increased
28	AB	15	50	Increased
29	AC	20	70	Increased
30	AD	25	65	Increased
31	AE	45	65	Increased
32	AF	40	60	Increased
33	AG	30	70	Increased
34	AH	45	65	Increased
35	AI	30	60	Increased
36	AJ	20	45	Increased
37	AK	35	75	Increased
38	AL	15	50	Increased
39	AM	40	65	Increased
40	AN	20	40	Increased
AVERAGE		29.5	56.25	Increased

Level of Validity, Practicality, and Effectiveness

This study will examine three aspects of the development carried out by the researchers, including:

a. Media Validity

The validation results were obtained using a scale of 1=Very poor, 2=Poor, 3=Fair, 4=Good, and 5=Very Good. The validation results from material expert 1 obtained a score of 32, resulting in an achievement level of 80% with a valid achievement

qualification. The validation results from material expert 2 obtained a score of 34, resulting in an achievement level of 85% with a valid achievement qualification. The validation results from the media expert obtained a score of 32, resulting in an achievement level of 80% with a valid achievement qualification.

Based on this validation, this media is considered valid for use in one of the ways of delivering material.

b. Practicality of Media

The practical stage of the media was carried out through observations conducted at SMKN 1 Simpangkatis, SMKN 1 Sungai Selan, SMAN 1 Sungai Selan, and SMAN 2 Sungai Selan, as seen below in Table 12:

Table 12. Pop-Up Book Media Practicality Instrument

NO	INDICATOR	INDICATORS OF LEARNING MEDIA UTILIZATION IN THE CLASSROOM	SCORE				
			5	4	3	2	1
1	In accordance with the objectives to be achieved	a. The media used in the material about Hajj is in line with the learning objectives to be achieved.	√				
		b. The media is appropriate for the material to understand the material about Hajj through the pop-up book media used.	√				
2.	Accuracy	a. The media used appropriately supports the learning material about the Hajj.	√				
		b. Media used is appropriate to the abilities of the students in the learning process.	√				
		c. The media used is in accordance with the objectives that have been set.	√				
3.	Practicality and flexibility	a. The material on the media is easily accessible	√				
		b. The media in the material can be used anytime and anywhere.	√				
		c. Media that covers the learning process	√				
		d. The media used can be used for a long period of time.	√				
4.	Technical Quality	The media used in the material about the Hajj is clear.	√				
		Information and materials conveyed through clear media	√				

a. Effectiveness of Media

Based on data analysis, pop-up books on the procedures for performing the Hajj meet the criteria for effective use as a medium for teaching Hajj material.

4. Conclusion

The pop-up book planning process begins with an analysis of student needs, followed by the researcher designing the pop-up book and selecting the techniques to be used. The next step is to conduct an assessment by validators, with the results showing a valid score. Both validator assessments indicate that pop-up books are a valid learning medium and can be used by students. The implementation of pop-up books as a medium was carried out directly in the classroom to obtain test data from the subjects. The data consisted of student responses after using pop-up books, which showed that they were very good and suitable for use in teaching the procedures for the Hajj and Umrah. An evaluation of the development of pop-up books as a learning medium shows that the results of their implementation in teaching the procedures for the Hajj have led to positive changes. This result demonstrates the positive impact of the developed media on students' learning outcomes. However, despite showing better changes, students' scores on their understanding of the Hajj and Umrah procedures are still not in the sufficiently understood category. Because this study is limited to the scope of the use of learning media, the scope of understanding the Hajj and Umrah procedures still requires further exploration or research related to understanding the Hajj and Umrah procedures. In addition, the level of achievement for the practicality of the product reached a high score (above average) with practical criteria. Thus, the use of pop-up books is an effective medium in the process of delivering material on the procedures for Hajj

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