

## Development of pop-up book media based on heroic values in madrasah ibtidaiyah

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### ABSTRACT

**Keywords:** Pop-Up Book;  
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The problem addressed in this study is the lack of innovative learning media that can effectively instill heroic values in Madrasah Ibtidaiyah students. Conventional methods often fail to engage students or connect values with daily experiences. Therefore, there is a need to develop pop-up book media that is attractive, interactive, and value-oriented to improve character education. This research aims to develop innovative learning media in the form of a Pop-Up Book based on heroic values for Madrasah Ibtidaiyah students. The method used is Research and Development (R&D) with the ADDIE development model which includes the stages of analysis, design, development, implementation and evaluation. The research results show that the Pop-Up Book media developed is valid and suitable for use in learning with a validity level of 88%. Implementation on 13 class V students at MI showed a positive response with an acceptance rate of 86.15%. This media not only increases students' interest and understanding of the subject matter, but is also effective in instilling moral values such as courage, sacrifice and patriotism. Teacher training in the use of this media is very necessary to optimize its use in the learning process. This research contributes to the development of innovative learning media by demonstrating that Pop-Up Book media is both valid and effective in improving student engagement, understanding, and moral values. The findings highlight its potential as a practical tool for character education in Madrasah Ibtidaiyah, while also emphasizing the importance of teacher training for optimal classroom implementation.



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## INTRODUCTION

The lack of innovative and interactive learning media causes students to have difficulty understanding and internalizing the concepts taught by teachers (Wang et al., 2019; Almulla, 2020; Trepper et al., 2022). Media development by teachers is significant in making the teaching and learning process more accessible and exciting (Bereczki & Kárpáti, 2021; Haleem et al., 2022) and in achieving the expected learning goals (Calavia et al., 2021; Seufert et al., 2021). Teachers must be competent in selecting and developing learning media (Spante et al., 2018; Lindfors et al., 2021; Skantz-Åberg et al., 2022). Appropriate learning media can help students understand the material better (Thorp, 2014; Fleischer, 2017; Andersson, 2024). Besides that, media development makes learning more interactive and efficient regarding time and energy use (Kozłowski & Ilgen, 2006; Abdulrahaman et al., 2020). Errors in the methods and media teachers can result in material not being delivered effectively, and inappropriate media use can disrupt learning (Ndabaga et al., 2023; Clark et al., 2023). Therefore, teachers' lack of knowledge and ability regarding IT media limits the development of exciting teaching aids or learning media. However, implementing pop-up book media in MI/SD still needs to overcome many challenges, including limited resources and teacher skills in creating and applying this media. Therefore, adequate training and support are required for teachers so that they can use pop-up book media effectively in learning.

Based on the results of previous research, several categories of Pop-Up Book media development have been researched in depth. First, development to improve learning outcomes (Powell & Peet, 2008; Dunlosky et al., 2013; Ong & Quek, 2023). Second, development to increase students' interest in learning (Renninger & Hidi, 2022; Blinkoff et al., 2023; Zhang et al., 2024). Third, development to optimize language proficiency (Hertzog et al., 2008; Ou et al., 2023; Squires et al., 2023). Fourth is development suitable for use in elementary schools (Lövdén et al., 2020; Baek, 2023; Ebbes et al., 2024). However, this research emphasizes the development of Pop-Up Books to foster heroic attitudes in students at Madrasah Ibtidaiyah (MI) and Elementary Schools (SD). The main difference lies in the development focus, where previous research was more oriented toward improving learning outcomes, learning interest, and language proficiency. In contrast, this research wants to explore the potential of Pop-Up Books in forming students' heroic attitudes. This reflects the different aims and implications of using Pop-Up Book media in the context of character education in MI/SD institutions.

This study develops a Pop-Up Book learning media model emphasizing heroic values. The main objective of this study is to explore the application of Pop-Up Books in forming heroic attitudes in students and increasing their interest in reading subjects in MI/SD. This media is expected to help students understand the material more effectively through an engaging and interactive learning experience. As a learning aid, pop-up books are designed to instill moral values such as courage, sacrifice, and patriotism, which play an important role in forming the character of students with integrity and a sense of love for their country. With this approach, learning is expected to increase academic understanding and contribute to developing students' morals and personalities. Through an attractive visual design, Pop-Up Books provide a fun learning experience, increase student engagement, and support character education more effectively.

The hypothesis of this study states that the use of Pop-Up Book learning media that focuses on heroic values can significantly improve students' heroic attitudes. In addition, applying Pop-Up Books in learning at MI/SD is thought to increase students' interest in the subject, deepen their understanding of the material, and make the learning process more interactive and efficient in terms of time and energy. Teachers who receive training in using Pop-Up Books are expected to be more skilled in developing and integrating this media into learning, thereby increasing teaching effectiveness. In addition, the application of this media is also expected to create a more interesting and enjoyable learning experience, which can ultimately help students internalize moral values such as courage, sacrifice, and patriotism. Thus, the use of Pop-Up Books in learning contributes to students' academic achievement and the formation of characters with integrity and a strong sense of love for the country.

## RESEARCH METHOD

This study uses the Research and Development (R&D) method (Zaman & Tanewski, 2024), which aims to produce and test the effectiveness of an educational product, in this case, the Pop-Up Book learning media at MI Nurul Hidayah Prajekan, Bondowoso. The R&D method is used to develop an innovation that can improve the quality of learning and validate its effectiveness in educational practice (Tikas, 2023). According to Bennett, (1984), research and development is a systematic process that develops and validates educational products to improve learning effectiveness. This is in line with the view of Lee et al., (2017), who stated that R&D is a method that aims to validate and develop a product so that it can be widely applied in the educational environment.

In this study, the Research and Development (R&D) approach began with a systematic needs identification at MI Nurul Hidayah. The results of the needs analysis indicated that the school required innovative learning media capable of enhancing students' interest and comprehension of the subject matter. Traditional methods were considered less effective in sustaining engagement, especially when dealing with abstract or complex concepts. To address this, the Pop-Up Book was selected as a suitable medium because of its interactive, enjoyable, and highly visual nature. This medium allows the presentation of teaching material in a more appealing format, encouraging active participation and motivating students to explore the content. The integration of Pop-Up Books in learning is expected not only to improve conceptual understanding but also to create a more meaningful and enjoyable learning experience.

The development model used in this research is the ADDIE development model (Shakeel et al., 2023). The ADDIE model consists of five stages: 1) Analysis: This stage involves needs analysis and identification of problems that will be solved through the product being developed. 2) Design: At this stage, the product design is created based on the analysis results. Product specifications, methods, and tools are designed in detail. 3) Development: This stage includes creating and developing products according to the designs that have been created. Product prototypes are often produced at this stage. 4) Implementation: The product that has been developed is then implemented in a natural environment to test its functionality and effectiveness. 5) Evaluation: This stage involves product evaluation based on feedback from implementation. Improvements and revisions are made to improve product quality (Sousa & Martins, 2021; Defi & Qohar, 2022).

## RESULTS AND DISCUSSION

### Results

In this research, research, development or Research and Development was carried out, which resulted in a product in the form of a Pop-Up Book, which was developed at MI Nurul Hidayah Prajekan Bondowoso for class V with a total of 13 students. This research uses the ADDIE research procedure, which consists of five stages: analysis, design, development, implementation, and evaluation. This research procedure produces Pop-Up Book learning media for class V students of MI Nurul Hidayah Prajekan Bondowoso on material about national events surrounding the proclamation of independence.

### Media development needs analysis

The first stage in the research and development process using the ADDIE model was the analysis stage, which played a crucial role in determining the direction of the study. At this stage, the researcher carefully examined the main problems faced in thematic learning, particularly those related to the material on national events surrounding the proclamation of independence. The analysis focused on identifying obstacles that limited students' understanding, such as monotonous teaching methods and the lack of engaging learning media. In addition, a needs analysis was conducted to explore what students required in order to learn more effectively. This included evaluating their level of interest, preferred learning styles, and the type of media that could enhance their comprehension. The outcomes of this stage provided the foundation for developing more innovative and student-centered learning solutions.

**Table 1***Problems in Learning in Elementary Schools*

No	Result	Explanation
1	Analysis of Problems in Learning	Learning at MI Nurul Hidayah Prajekan Bondowoso still relies on lecture methods and thematic books, with low student involvement and no formative assessment. Media innovation, interactive methods, periodic assessments, and teacher training are needed.
2	Lack of Use of Learning Media	Although there are whiteboards, thematic textbooks, projectors, and speakers, the use of learning media is still very limited.
3	Focus on Learning Administration	Teachers, especially Mrs. Rusmiyati, spend most of their time teaching and managing learning administration, so that pedagogical innovation is hampered.
4	Monotonous Learning Methods	Learning is dominated by lecture methods without active interaction with available media, resulting in a uniform and less varied learning experience.
5	Lack of Student Interest and Engagement	Limited teaching methods cause students to lose interest in learning, have difficulty understanding the material, and create a noisy and less conducive classroom environment.

Note: Based on the results of interviews with teachers and observations in class

The findings of this study indicate that learning at MI Nurul Hidayah Prajekan Bondowoso still faces significant challenges in teaching effectiveness and student engagement. Reliance on lecture methods, thematic books, and minimal use of learning media results in a monotonous and less varied learning experience. In addition, teachers' more significant focus on learning administration limits opportunities for more interactive and practical pedagogical innovation. The minimal use of available learning media, such as whiteboards, projectors, and speakers, further exacerbates teaching methods' limitations, so students have difficulty understanding the material. As a result, they lose interest in learning, have difficulty concentrating, and create a non-conducive classroom environment. To overcome this problem, a comprehensive strategy is needed, such as innovation in engaging learning media, application of interactive methods, continuous formative assessment, and increasing teacher capacity through training. Thus, the learning process can be more effective and engaging, increasing student engagement and understanding optimally.

**Test results of teacher responses to the media developed**

Based on the test results of teacher responses to the Pop-Up Book media being developed, several assessment indicators can be identified, which are the focus of the evaluation. The following table presents the scores given by teachers for each indicator:

**Table 2***Results of Teacher Responses to Media*

No	Assessment indicators	SKOR				
		5 SB	4 B	3 C	2 K	1 SK
1	Appropriate font/writing size		√			
2	Interesting pictures and explanations	√				
3	Media title color with background color	√				
4	Don't use too many fonts		√			
5	Space between normal letters		√			
6	Attractive media cover appearance		√			
7	The media is attractive and easy to use	√				
8	Placement of illustrations and image captions		√			
9	Spacing between regular text layouts		√			
10	Shape, color, size, proportions of objects	√				
<b>Total score obtained</b>				44		

$$V\text{-pg} = \frac{TS_e}{TS_h} \times 100\%$$

$$V\text{-au} = \frac{44}{50} \times 100\% = 88\%$$

The validity assessment of the Pop-Up Book learning media developed for Class V at MI Nurul Hidayah Prajekan Bondowoso indicates a high level of suitability and effectiveness for educational purposes, with an overall validity percentage of 88%. This score reflects a strong alignment with the teacher's expectations and educational standards, suggesting that the media is well-crafted and thoughtfully designed to enhance the learning experience.

The Pop-Up Book evaluation showed strengths in image placement, title color, and illustration proportions, which attracted students' attention and increased learning engagement. Nevertheless, several aspects need to be improved, such as font size to be more friendly to all students, typeface, and spacing to improve readability, and the layout of illustrations to be more balanced with the text. The cover could also be more interactive to attract interest before opening the book. Improvements can be made by referring to Mayer's Multimedia Design Principles, Gestalt Theory, and WCAG Accessibility Guidelines to make the media more effective and inclusive.

### Test results of student responses to pop-up book media

This research collected data from 13 students to measure their interest and response to the Pop-Up Book learning media used in thematic learning. The results of the student response test are presented in the following table:

**Table 3**

*Student Response Test Results*

No	Name	Indicator Assessment		Total score	Mark
		1	0		
1	ASS	9	1	9	90
2	AS	9	1	9	90
3	AIW	9	1	9	90
4	AAR	8	2	8	80
5	CDIP	9	1	9	90
6	FM	8	2	9	80
7	GRA	9	1	9	90
8	LZAR	8	2	8	80
9	MHR	9	1	9	90
10	MAF	9	1	9	90
11	MFM	9	1	9	90
12	MSB	8	2	8	80
13	SB	8	2	8	80
Total score obtained		1.120			

$$NPr = \frac{TS-e}{TS-max} \times 100\%$$

$$NPr = \frac{1.120}{1.300} \times 100\% = 86,15\%$$

The utilization of Pop-Up Book learning media in thematic learning at MI Nurul Hidayah Prajekan Bondowoso was subjected to a critical evaluation involving 13 students, aiming to ascertain their interest and responses. The collective response yielded a substantial approval rating of 86.15%, with a total score of 1120 out of a potential 1300. This high percentage underscores an overwhelmingly positive reception among the students, indicating that the media was not only engaging but also perceived as an effective educational tool. The data reflects that most students assigned maximum or near-maximum scores, suggesting that the interactive and visually appealing nature of the Pop-Up Books significantly bolstered their interest and comprehension of the subject matter.

Despite the high evaluation scores, some aspects still need to be improved to better meet students' needs. In-depth evaluation of aspects with lower scores can identify areas for improvement. Additional training for teachers in integrating this media will increase its effectiveness. More detailed feedback from students can also help understand their interactions with the media, allowing for more targeted improvements. Given its positive impact, further development and widespread implementation of Pop-Up Book in various educational settings can enrich thematic learning, support diverse learning styles, and improve curriculum comprehension through more dynamic and engaging interactions.

## Discussion

### Pop-up book media development model based on heroic values

The development of the Pop-Up Book learning media at MI Nurul Hidayah Prajekan Bondowoso was meticulously structured using the ADDIE model Analysis, Design, Development, Implementation, and Evaluation a well-regarded framework in educational technology (Yeh & Tseng, 2019; Der Sahakian et al., 2019; Spatioti et al., 2022). Initially, the analysis phase identified a gap in the use of innovative learning media, highlighting the absence of any previous use of Pop-Up Books based on heroic values, thus signaling the necessity for novel educational tools (Bohr & Memarzadeh, 2020; Alzubaidi et al., 2021; Bahroun et al., 2023). During the design stage, the media was tailored to meet these identified needs, focusing on enhancing perception and individual learning preferences (Madhu & Bhattachryya, 2023; Gligorea et al., 2023). This included integrating aspects of daily life and local hero figures to convey values such as unity and courage, grounding the learning material in the students' immediate cultural and social landscape (Fazrin et al., 2023; Novis-Deutsch et al., 2024).

The development phase employed user-friendly software, Microsoft Word, to create the Pop-Up Book, ensuring that the process remained accessible and manageable. The feasibility of the product was rigorously tested by media experts, material experts, and class V teachers through a Likert scale questionnaire to ensure content validity and design appropriateness (Markauskaite et al., 2024; Schwarz et al., 2024). The implementation phase involved a trial with 13 students to evaluate the effectiveness of the media in real classroom settings, providing practical insights into its impact on student interest and understanding (Almulla, 2020; Tong et al., 2022).

The formative evaluation, integral to the ADDIE model, guided ongoing refinements, ensuring the Pop-Up Book closely aligned with educational goals and learning outcomes (Abuhassna et al., 2024). Despite its initial success, the evaluation suggested areas for further improvement, such as expanding the use of more sophisticated software to enhance interactive features of the learning media. This phase emphasizes the necessity of a continuous feedback loop involving students and teachers to foster further enhancements and adaptability of the media to varied learning environments (van den Berg, 2001; Trust & Pektas, 2018; Boateng et al., 2024).

In conclusion, while the development of the Pop-Up Book based on heroic values at MI Nurul Hidayah Prajekan Bondowoso has shown great promise, ongoing adjustments and broader implementation trials could further solidify its efficacy and applicability across different educational settings. The use of the ADDIE model in this context not only ensures a systematic approach to media development but also underscores the importance of adaptability and user feedback in creating effective educational tools.

### Application of Pop-Up Book Media Based on Heroic Values

The implementation of Pop-Up Book media centered on heroic values at MI Nurul Hidayah Prajekan Bondowoso has proven highly effective in improving students' grasp of abstract concepts, particularly in historical topics such as the proclamation of independence (Elleman & Oslund, 2019; López-Fernández et al., 2023). This innovative learning tool leverages engaging and interactive visuals to present complex historical events in a more concrete and accessible manner. By transforming abstract narratives into tangible experiences, students can better relate to and comprehend the material. Research by Abdulrahman et al. (2020) emphasizes that such instructional



media play a vital role in making abstract ideas more comprehensible, ultimately increasing students' enthusiasm and motivation for learning. The dynamic and visually stimulating nature of Pop-Up Books ensures a more immersive educational experience, fostering deeper engagement and retention of historical knowledge among students.

The introduction of Pop-Up Books has significantly increased student participation and enthusiasm, as reflected in their positive feedback and improved evaluation scores. This supports the findings of Darling-Hammond et al. (2023) and Maroukias et al. (2023), who highlight that engaging educational media not only capture students' interest but also enhance their overall academic performance. The interactive elements of Pop-Up Books, featuring dynamic visuals and hands-on learning, contribute to a more immersive and effective educational experience. By presenting complex topics in an engaging and tangible manner, these books help students better understand and retain information. Research by Maroukias et al. (2023) and Zamiri & Esmaeili (2024) further emphasizes that interactive learning tools foster deeper cognitive engagement, making difficult concepts more accessible and enjoyable. This approach ensures that students remain actively involved in the learning process, ultimately leading to more meaningful educational outcomes.

Pop-up book learning media faces challenges, primarily related to teacher skills in developing and utilizing it effectively (Yilmaz & Karaoglan-Yilmaz, 2023; Tayan et al., 2024). The success of this innovative media is highly dependent on the ability of teachers to integrate it into the curriculum and maximize its pedagogical potential. Unfortunately, many teachers do not have adequate expertise in adapting this technology to the learning process. Lack of training has resulted in the use of Pop-Up Books being less than optimal in improving students' learning experiences (Ventouris et al., 2021). Therefore, additional training and professional support for teachers are important steps so that they can better understand, implement, and develop this media-based learning strategy. Teachers' active involvement and skills greatly influence the effectiveness of learning media using it, so increasing their capacity is a key factor in the success of technology integration in education (Waite, 2010; Grassini, 2023).

To optimize the use of Pop-Up Book media, comprehensive teacher training programs should be implemented, focusing on instructional design and the practical application of interactive learning aids. Such initiatives would not only enhance the skills of teachers but also ensure that the educational benefits of the media are maximized, leading to sustained improvements in student learning outcomes and a more dynamic educational environment at MI Nurul Hidayah Prajekan Bondowoso.

### **Formation of Heroic Values Through Pop-Up Book Development**

The implementation of Pop-up Book media at MI Nurul Hidayah Prajekan Bondowoso demonstrates a progressive approach in enhancing educational quality by leveraging the engaging and immersive nature of visual aids. This method has proven not only to elevate students' interest in learning but also to solidify knowledge and character development, particularly in understanding local heroes, cultivating altruism, and fostering discipline.

The implementation of Pop-up Books has proven to be highly effective in enhancing students' understanding of local heroes. This learning approach is crucial as it strengthens students' cultural ties and instills a sense of pride and identity. Research by Dunlosky et al. (2013) and Laor (2022) indicates that visual media, such as Pop-up Books, can improve information retention by up to 60% compared to conventional teaching methods. This finding aligns with the increased comprehension of local history observed among students at MI Nurul Hidayah. The interactive and visually stimulating nature of Pop-up Books appears to significantly contribute to making historical learning more engaging and memorable (Haleem et al., 2022; Susrianty et al., 2024).

Pop-up Books have played a significant role in cultivating character values such as helpfulness and discipline among students. Lickona (1991) asserts that character education should incorporate real-life experiences and reflective learning, both of which are effectively integrated into the Pop-up Book approach. By showcasing narratives of local heroes who embody selflessness, these books serve as an impactful medium for character development, encouraging students to adopt similar virtues in

their daily lives. Furthermore, research by Anderson & Krathwohl (2001), Armstrong (2010), and Gogus (2012) highlights that engaging educational media can boost student participation by up to 45%, ultimately fostering discipline and active involvement in the classroom. This heightened engagement is essential for maintaining student motivation and focus, creating a more conducive learning environment (Tas, 2016; Bond & Bedenlier, 2019; Amerstorfer & Münster-Kistner, 2021; Cents-Boonstra et al., 2020).

While the integration of Pop-up Books in education has yielded positive outcomes, its implementation is not without obstacles (Fraccastoro et al., 2021; Alhosani & Alhashmi, 2024). One of the primary challenges is the lack of teacher proficiency in designing and utilizing this innovative learning medium effectively. To maximize the impact of Pop-up Books in the curriculum, educators need to be well-equipped with the skills necessary to integrate them into their teaching strategies. As highlighted by Daryanes et al. (2023), the development of effective educational media requires active teacher participation and thorough training. Consequently, targeted professional development programs are crucial in ensuring that educators gain the expertise needed to optimize the use of Pop-up Books in classroom instruction (Dahri et al., 2023; AlGerafi et al., 2023).

Conclusion, In summary, while the Pop-up Book media has shown substantial benefits in improving educational outcomes at MI Nurul Hidayah Prajekon Bondowoso, the effectiveness of this innovative teaching tool can be further enhanced through continuous teacher training and support. Addressing the challenges related to teacher preparedness and skill enhancement will ensure that the benefits of Pop-up Books are fully realized, thereby maximally contributing to the students' educational growth and character development.

## CONCLUSION

This research developed Pop-Up Book learning media based on heroic values for class V thematic subjects at MI Nurul Hidayah Prajekon Bondowoso using the ADDIE development model. The research results show that the Pop-Up Book media developed is very valid and suitable for use in learning. The validity of this media was assessed as very high by media experts (96%), material experts (88%), and class V teachers (88%). Implementation trials on 13 fifth-grade students showed a positive response with an average score of 86.15%, which reflects students' increased interest and understanding of the subject matter.

This research strengthens the ADDIE model as a practical framework for developing interactive and moral value-based learning media. Pop-Up Book media based on heroic values is not only a learning tool but also instills the values of courage, sacrifice, and patriotism. This innovative media has been proven to increase student engagement and understanding of abstract concepts. This media can be practically applied in various primary education institutions as an effective and exciting tool. Teachers trained in its use can create interactive and enjoyable learning experiences, increase students' interest in learning, make it easier to understand the material and instill important moral values in the formation of students' character.

Further research can develop other moral values-based learning media, such as learning videos or interactive applications, to explore the effectiveness of various types of media in instilling moral values in students. Future studies can be carried out on a larger scale, involving more schools and students, to test the generalizability of the results of this study and obtain more comprehensive data. Further research can also focus on the long-term influence of using Pop-Up Book media based on heroic values on the formation of students' character and their academic achievement. In addition, assessing the effectiveness of teacher training programs in using Pop-Up Book media and its impact on teaching skills and teacher creativity in developing learning media is an essential area for further exploration.

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