Pop-up Storybook Media Development for Cultivating Peace-loving Characters in Early Childhood

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Abstract

Character formation is a necessary provision for early childhood to uphold morals and control themselves from the adverse effects of today's technology when they grow up. In practice, media use for character introduction still looks monotonous in early childhood. Therefore, it is inevitable that the researchers' creative solutions develop interesting and emerging media. Pop-up storybooks are learning media compiled by combining text and 3D image illustrations to resemble the real ones. Developing a pop-up storybook also aims to help educators introduce characters to early childhood, especially peace-loving characters. This study, thus, conducted the five steps of the ADDIE model as its development process: analysis, design, development, implementation, and evaluation. This study employed an assessment instrument in the form of a media expert validation sheet, material, and character. In addition, media testing was conducted by Tahfidz Al-Quran Yamabi Kindergarten and Marga Laksana Kindergarten for children aged groups A and B. The analysis results highlighted that this book was feasible and valid. Furthermore, this book was feasible to be applied in instilling peace-loving characters in early childhood. For this reason, teachers are expected to periodically use pop-up storybooks and the like to instill other characters

Keywords: Storybook, Pop-up, Peace-loving Character, ADDIE


Kata Kunci: Buku Cerita, Pop-up, Karakter Cinta Damai, ADDIE

INTRODUCTION

Character is an individual's personality created from habits and in the form of traits morally valued and participating in forming a good life with oneself and the environment in which one lives (Ruch et al., 2021). One of the best places to instill character is through education. Strengthening character through education is an approach in direct stimulation by focusing on children's social and emotional development when deciding on good/bad behavior and whether an action can be taken. The noticeably significant role of character education also lies in the child's environment, where they are born and grow up (Gampu et al., 2022). Through education, children are not only required to develop insightful knowledge but attitudes and mental skills are also formed and developed equally. Per Lickona’s theory, it is stated that character education is not carried out to form moral knowing only but also needs to include moral feeling and moral action (Izzati et al., 2019).

Moreover, a character comes from the habits and characteristics of a nation. Meanwhile, the nation's character values are inherited from various cultures and are contained in the relics of Pancasila and the religion adopted by the country. It aligns with the purpose of education, according to Hidayat, i.e., to build and develop the character of students following the demands of religion and the nation's noble values through education (Putra, 2019). As Megawangi et al. stated in 9 Pilar Karakter: Toleran, Cinta Damai dan Bersatu [9 Pillars of Character: Tolerance, Peace-loving and Unity], one of the nine pillars of the nation's character is the love of peace. Love means loving and caring for each other, while peace means serenity, comfort, and serenity. Thus, peace-loving understanding is an attitude of loving each other and maintaining unity and tranquility. From this understanding, it can be concluded that the peace-loving character is a behavior shown by an individual to create an atmosphere of peace by loving each other and being able to build a spirit of unity wherever he is.

The concept of values in peace-loving characters includes not being hostile, not being nosy to friends, not having hatred and revenge, and being gentle with others. In addition, being easy to forgive and controlling anger is part of the value of peace. A peace-loving character also means a change in the behaviors, words, and actions of an individual who can bring happiness and a calm atmosphere due to his existence (Sari et al., 2019). Besides, this character is crucial to have for the creation of life without hostility. A person with a peace-loving character will try to create a calm atmosphere and avoid conflicts that cause chaos. A peace-loving character can also be interpreted as a person's way of life that is non-violent, tolerant of others, obedient to norms, and cares about calm and harmony (Erviana, 2021).

According to Zubaedi, individuals with peace-loving characters will have expertise in maintaining words, actions, and behaviors negatively impacting the surrounding environment (Sari et al., 2019). When an individual lives in the community, he will also try to appreciate the success and differences of others and make an effort to motivate himself always to behave well so that he will not get a loss, likewise for other people around him (Nugroho et al., 2021). The success of an individual with a peace-loving character is described by an attitude of being happy to be friends with anyone, likes to share, does not discriminate against friends, likes to greet friends, acts as a mediator between friends who fight, is willing to listen to other people's opinions, has empathy, does not like to disturb friends, and help anyone he meets. This statement is reinforced by the opinion of Megawangi et al. (in Salamun et al., 2022), stating that loving peace is related to being easy to forgive others and control one's emotions.

As a result, the lack of peace-loving character introduced to children from an early age negatively impacts adulthood, especially environmental security. It is because one of the actions of not applying a peace-loving character is to live in hostility and chaos. The decline of the nation's character is also marked by the many problems in society. The Ministry of Women Empowerment and Child Protection (MoWECP) through press release number 135/SETMEN/HM.02.04/10/2021 mentioned that from January to September 2021, the Online Information System for the
Protection of Women and Children (Somfoni PPA) reported 11,236 cases of violence, with 12,008 victims. Among these cases, the forms of violence that occurred included sexual violence, bullying in the form of verbal/nonverbal, to other violence. In 2019, UNESCO data also proved with survey results that 32% of students had been victims and perpetrators of bullying at school. In addition, KPAI stated that every year, there were approximately 1,764 brawls between students (Sekarningrum et al., 2021). Violence through cyberspace has happened much. According to data from the United Nations Office on Drugs and Crime (UNODC) in 2011, seven forms of abuse in fulfilling the interests of terrorism include invitations, workshops, terror, propaganda, financing, and cyberattack (Suherman & Muthohhirin, 2021). All of these are due to the lack of individual understanding regarding living in harmony and love of peace, so committing violence and crime is considered natural and normal.

To realize the peace-loving character in children from an early age, it needs to be implemented with various efforts from parents and educators. According to Judiani, the cultivation of peace-loving characters in educational institutions is not taught through specific subjects but is taught through imitation between humans, such as by imitating the attitude of educators or adults (Izzati et al., 2019). Therefore, educators or adults play an essential role in shaping students' character. Students in early childhood also often imitate the behavior of those around them. Giving an example to children is one of the habituations with effective strategies when forming morals (Erviana, 2021). As such, educators who can be good role models will form students with good character and vice versa. In this regard, one method educators can use before setting an example for children is knowing the good, reasoning the good, feeling the good, and acting good. According to Cahyono et al. (2018), implementing this method provides education about a character in a firm, sequential, and continuous manner, so it is very appropriate for instilling character, especially a love of peace in children. Through knowing the good, children can get used to thinking about good actions, such as being unable to fight, saying nice things, and others.

Reasoning the good is also needed, so the child knows why he did the action. Then, feeling good is necessary for children to know their feelings so that children always love to do good. Furthermore, the child will act well to implement the characters learned. If the child is accustomed to doing these four steps, over time, the peace-loving character in the child will be formed until he grows up.

Aside from habituation and example, the steps above can also be applied, one of which is the storytelling method. According to Sumual (2020), the storytelling method conveys meaningful stories orally to listeners, so it is appropriate if the implementation is to install a peace-loving character in children. In addition, this method will work if it is delivered creatively and interestingly. According to Piotrowski, media use in learning influences children’s development significantly, especially character development (Rahmawati & Rukiyati, 2018). Besides material content, media is also fun for children (Hatim et al., 2019). For instance, using stage puppets, making unique sounds when conveying different characters, and even using storybooks are also allowed. Besides, there are many kinds of storybooks.

Meanwhile, the type of storybook that children like is a storybook in the form of a pop-up. It is consistent with what Nisaarrasyidah (2018) conveyed that pop-up books have market potential to be more attractive to children since they are packaged with attractive displays. This pop-up book is also packaged in three-dimensional images and does not have much text (Rahmawati & Rukiyati, 2018). It can make it easier for children who have not been able to read to understand the message content to be conveyed through interesting and moving images. In addition to using text in books, the arrangement of lines, colors, shapes, volumes/mass, layout, composition, patterns, spaces, textures, and proportions are crucial elements in making pop-up books (Leung & Yuen, 2022).

Furthermore, pop-up storybooks have a 3-dimensional display form, presenting various surprising educational games on each page (An’noor & Hasyim, 2020). The design of the pop-up storybook looks simple, but the arrangement of the paper cutouts is highly
complicated. One important pop-up structure technique is foldability (Yoneda et al., 2022). Arranging pop-ups with the folding technique requires measurement and a superior level of knowledge to be proportional and not collide with each other. Each manufacturing process requires trial and error to produce the desired animation. Pop-up storybooks are also known to have techniques that can manipulate the use of paper so that it becomes various forms with various meanings. The paper engineering technique mentioned is included in one of the fields of paper engineering (Aurelia & Asmarani, 2021). The paper used also affects the creation of pop-ups. Here, origami paper is one of the most accessible types of paper to make pop-ups; only that this type of paper is mainly used for greeting cards and simple pop-ups. Moreover, making story books requires a medium-thickness paper type so that it can stand upright and not cause cracks in the folded part when folded.

Pop-ups also have many types according to the category. By design, pop-ups are divided into two algorithms: pop-ups that can be enjoyed when opened at about 180 degrees and 90 degrees (Soltan, 2021). The use of this algorithm is tailored to the needs of the developer. Then, based on the technique, pop-ups consist of transformers, volvelles, box and cylinders, peepshows, pull-tabs, and carousels (Liu, 2019). Meanwhile, based on their appearance, pop-ups comprise V-style pop-ups, multi-style pop-ups, slice-form pop-ups, and transforming pop-ups (Xiao et al., 2018).

Further, the benefit of using pop-up storybooks as a learning medium is that it can increase children's creativity in imagining related storylines presented (Rahmawati & Rukiyati, 2018), become entertainment to generate children's intentions and happiness in reading (Hasanudin et al., 2021), introduce children to be appreciative of books (Liu, 2019), and add insight regarding an object presented in three-dimensional/tangible form, and pop-up design techniques to create a sense of play in children (Leung & Yuen, 2022). Besides, pop-up storybooks can make it easier for educators and parents to introduce children to peace-loving characters. Moreover, pop-up storybooks not only give a stunning visual impression but can also stimulate children's thinking and make it easier for them to understand the story's contents (Anggraini et al., 2019).

Therefore, this study aims to describe the design of pop-up storybook media in instilling peace-loving characters in early childhood, explain the expert validation results of the developed pop-up storybook media, and determine the feasibility and effectiveness of pop-up storybook media to be applied in early childhood in instilling a peace-loving character.

METHODS

This study used the research and development (R&D) methods. According to Sugiyono in Research and Development Methods, this research method aims to create products and test the practicality of the products developed (Murniviyanti & Marini, 2021). The authors also employed the ADDIE model since this model’s stages align with the product that the researchers wanted to develop. In addition, the ADDIE model is based on the theoretical foundation of learning design. As such, the program was developed related to problem-solving efforts from the analysis results following the student's needs and characteristics. The ADDIE model was also utilized as a guide in creating a product since it has simple basic stages, can use technological media, and is easy to use (Kurniawan et al., 2021). In addition, ADDIE is an iterative process, where each phase can suggest improvements to the previous phase. Meanwhile, the ADDIE model consists of analysis, design, development, implementation, and evaluation.

Analysis

This phase consisted of several steps: determination of learning objectives, analysis of research that conducted the same research to see inputs and improvements during development, determination of resources and targets, characteristics of targets, and analysis of how to deliver well to predetermined targets.

Design

At this stage, it began to identify learning objectives, starting from the methods used during product development, designing materials to be the product/storyboard contents, the suitability of the products
developed with the target characteristics, and the selection of tools and materials to be used from the beginning of manufacture to the completion of the product development.

Development

In this phase, the developer created the content to be developed. This content included all learning related to characters, illustration models to be used, character design, coloring, and layout. This phase also produced tangible outputs used in training. It is the last chance to make necessary corrections before delivering the learning module. A helpful tactic in this phase is to make trial and error to determine whether the learning objectives are being met and aligned with the design phase strategy.

Implementation

This phase was the realization of the previous phases. Materials were given to students, and learning modules were used for their intended purpose. The primary use of this phase was learning. However, it is also essential to identify suggestions and input for future revisions.

Evaluation

In this last phase, the developer evaluated the product being developed. It started with meeting learning objectives, efficiencies of technical issues hindering learning, and new opportunities identified during the implementation phase. Data collection techniques and instruments were carried out through interviews, validation sheets, teacher and child response questionnaires, observation sheets, and tests. Validation was measured through media validation sheets, material validation, and character validation. Then, the data results were processed, and the average was determined as the result score of the validator and the response during the trial to test the product feasibility and validity in achieving the learning objectives.

Table 1. Questionnaire Assessment Criteria

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>5</td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
</tr>
<tr>
<td>Good enough</td>
<td>3</td>
</tr>
<tr>
<td>Not good</td>
<td>2</td>
</tr>
<tr>
<td>Not very good</td>
<td>1</td>
</tr>
</tbody>
</table>

Then, the data obtained were searched for the product feasibility score in the form of a percentage using the formula presented below.

$$\text{Percent} = \frac{F (\text{Total score obtained})}{N (\text{Highest score result})} \times 100\%$$

The percentage results were then classified with the following assessment criteria presented in the table below.

Table 2. Percentage of Questionnaire Assessment

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>86% - 100%</td>
<td>Very valid</td>
</tr>
<tr>
<td>71% - 85%</td>
<td>Valid</td>
</tr>
<tr>
<td>56% - 70%</td>
<td>Valid enough</td>
</tr>
<tr>
<td>&lt;55%</td>
<td>Not valid</td>
</tr>
</tbody>
</table>

RESULTS AND DISCUSSION

Result

The development of pop-up storybooks in instilling peace-loving characters in early childhood was carried out based on the five stages of the ADDIE development model. It was to get an effective and feasible storybook to be given to early childhood in introducing the importance of peace-loving characters in everyday life. The following are the results obtained from the implementation of the five stages of the ADDIE model.

Analysis Stage

At this stage, the researchers analyzed observations in the field. According to Mayfield (2011), several steps in the analysis stage include the following stages.

1. Setting the goals of the product to be developed

   The pop-up storybook was developed to introduce children to peace-loving characters. Currently, many violent cases still occur between fellow children who like to disturb friends, are reluctant to forgive, and hate or isolate friends. In this case, educators only advise children with boring lecture methods. Because of that, the researchers developed a pop-up storybook with illustrations, colors, and suitable language with the child’s characteristics.
2. The results obtained from previous research related to the use of the product

According to research by Nisa et al. (2018), one way to deliver an interesting storytelling method is by using pop-up storybooks as a storytelling tool. Pop-up storybooks can increase children's interest and enthusiasm in the characters to be conveyed. Characteristics of storybooks for children should also have an uncluttered appearance and suitable language for children. Meanwhile, it is stated by Cahyani (2020) that the use of three-dimensional books as a medium for learning characters or morals in children is very effectively applied. The study assessed the media effectiveness by testing respondents before and after using the media. The data revealed that children understood the character better after using the media as a learning aid. From these two studies, it can be concluded that the use of media is highly effective and feasible to be applied as character instilling in early childhood.

3. Determination of the resources and characteristics of the target to be aimed at developing the product

The resources determined by the researchers were educators. Meanwhile, this product development targeted students aged four to six years. After the observations were made, the researchers conducted tests at Tahfidz Al-Quran Yamabi Kindergarten and Marga Laksana Kindergarten in Buaran, East Jakarta. The students needed in this test were students in groups A and B, with an average of eight children per class.

4. Determination of product delivery to the target

Through the storytelling method, the educators used learning media such as pop-up storybooks to instill peace-loving characters in early childhood. Educators also followed each story with creative and interesting delivery to attract children's interest, and the message conveyed could be accepted by the child. Following the research by Sumual (2020), the storytelling method will be successfully applied if it is done interestingly and creatively in its delivery.

**Design Stage**

The purpose of making pop-up storybooks was to introduce peace-loving characters through books with embossed effects. Then, the researchers formulated the story scenario script by involving the characters and the environment around the child, and the book’s design was developed to be attractive according to the child’s characteristics. At the initial design stage, the developer made a storyboard and designed a pop-up technique using 220 GSM Concord paper. After the storyboard was completed, the developer made a sketch using the help of the Medibang Paint Pro application for drawing and coloring. The color selection in this book was also adjusted to the characteristics of early childhood. The resulting format of this application was *.png to make it easier for developers to set character patterns in subsequent applications before printing.
The pop-up applied in this book was from the eye's point of view using a 180-degree view. According to Arjuna & Ardiansyah (2019), this type of display requires effort to open the page up to 180 degrees to see the pop-up technique perfectly. If viewed based on the technical pop-up, the type of pop-up was divided into semi-auto and manual combinations. The point is that when the book page was opened, the pop-up fold applied was immediately formed, and in certain parts with the words "PULL," the image would be transformed. Meanwhile, regarding the type of pop-up based on the manufacturing technique, the researchers used pop-up peepshow, pull tabs, v-style, box cylinder, and transformation. According to Arjuna & Ardiansyah (2019), the type of pop-up is easy to apply, and combining several pop-up techniques in work will produce an eye-catching, attractive, and not monotonous book. Making pop-up storybooks requires measurements to calculate the distance, diameter, and angle between one piece and another (Xiao et al., 2018). It was done so that each piece of the image object did not experience a collision.

Development Stage

The researchers developed the pop-up storybook in two steps: 1) the preparation stage for the pop-up storybook and 2) the validation testing stage (Siregar et al., 2021).

In the preparatory stage of the pop-up storybook, it was developed in the form of print media. The type of paper used was 230 GSM Art Paper with a size of 22 cm x 22 cm per sheet. The pop-up storybook had 18 pages, with each page applying a different pop-up technique to have a different surprise for the reader when they opened it. Image pattern settings for pop-up applications utilized Adobe Photoshop applications. The formats produced by this application were *jpeg and *jpg.

Then, the background and character illustrations were printed separately because in making the pop-up, it took an effort to cut the image pattern, given the size. After all the patterns were cut out, they were assembled by applying the pop-up type determined on each page. Each sheet was given a thickness of about 0.3 cm to make it easier for readers to turn the book page to the next page.

Figure 4. Pop-up Image Pattern Setting with Adobe Photoshop Application

Figure 5. Making Background and Book Pages

Figure 6. Display of (a) Front View of The Book, (b) Back View of The Book, and (c) Thickness of The Book
After developing the product until the product was finished printing, validation tests were then carried out by media, material, and character experts. The results obtained are as follows:

**Table 3. Expert Validation Test Results**

<table>
<thead>
<tr>
<th>Validator</th>
<th>Total score</th>
<th>(%)</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media expert</td>
<td>76</td>
<td>89%</td>
<td>Very feasible</td>
</tr>
<tr>
<td>Material expert</td>
<td>63</td>
<td>74%</td>
<td>Feasible</td>
</tr>
<tr>
<td>Character expert</td>
<td>64</td>
<td>75%</td>
<td>Feasible</td>
</tr>
</tbody>
</table>

The next was the validation testing stage. At this stage, three experts validated the first book’s draft. The validation results showed that the average value of media validation was 89%; this score could be stated to be very valid and feasible. In addition, the results of the average value of material validation obtained a score of 74%, with valid criteria. Furthermore, after assessing the character validation, the score obtained 75% with valid criteria by averaging the value. Next, minor improvements should be made to the illustrations and image placement, and grammar should be changed.

**Implementation Stage**

The revision results of draft 1 produced draft 2. It is where the draft 2 results would be used in field testing to assess the feasibility and usefulness of the product.

**Table 4. Test Results on Tahfidz Al-Quran Yamapi Kindergarten Users**

<table>
<thead>
<tr>
<th>Respondent</th>
<th>(%)</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>92.9%</td>
<td>Very valid</td>
</tr>
<tr>
<td>Group A teacher</td>
<td>94.4%</td>
<td>Very valid</td>
</tr>
<tr>
<td>Group B teacher</td>
<td>96.0%</td>
<td>Very valid</td>
</tr>
<tr>
<td>Student group A</td>
<td>92.5%</td>
<td>Very valid</td>
</tr>
<tr>
<td>Student group B</td>
<td>100%</td>
<td>Very valid</td>
</tr>
</tbody>
</table>

**Table 5. Test Results on Marga Laksana Kindergarten Users**

<table>
<thead>
<tr>
<th>Respondent</th>
<th>(%)</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>98%</td>
<td>Very valid</td>
</tr>
<tr>
<td>Group A teacher</td>
<td>93%</td>
<td>Very valid</td>
</tr>
<tr>
<td>Group B teacher</td>
<td>91%</td>
<td>Very valid</td>
</tr>
<tr>
<td>Student group A</td>
<td>85%</td>
<td>Valid</td>
</tr>
<tr>
<td>Student group B</td>
<td>85%</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Based on Table 4, the responses of educators and students to pop-up storybooks could be categorized as valid and good in instilling peace-loving characters in children. It is where the percentage of user responses was in the very feasible category, with an average score above 90%. Furthermore, the responses of students in groups A and B who understood the material related to the character of peace-loving had an average score percentage of 85% and above in the feasible category. Thus, the results of product trials were very feasible and valuable for early childhood. In other words, children could understand the meaning of a peace-loving character, the importance of a peace-loving character, and the impact that will occur if it is not.
Evaluation Stage

At this stage, the product developed was re-analyzed regarding the feasibility, validity, and advantages and disadvantages resulting from this media's use to support the instilling of peace-loving characters in children. After the assessment was carried out from several validations and trials, the pop-up storybook was declared feasible as one of the interesting reading books for early childhood.

Discussion

Based on the validation and feasibility trial results, pop-up storybooks can be a supporting tool in introducing the importance of peace-loving characters to children. Meanwhile, previous research by Suroiha et al. (2022) argues that using diverse and structured pop-up storybooks in the learning process will help stimulate imagination and increase children's insight regarding the material. In addition, it is asserted by Nisa et al. (2018) that the application of pop-up story books is very appropriate to be presented in early childhood since it has a display with embossed effects so that children feel actual picture illustrations, and the increased interest of children in books read creates character concepts. The content contained in the story can also be well embedded in the child’s memory and is well applied in the child’s life. According to Liu (2019), pop-up books are also said to be suitable for targeting children for two reasons: first, there is almost no book form that manifests its material the most in children, and second, each pop-up mechanism is designed to be attractive (attracting the reader's attention) so that children can understand the message that the storybook wants to convey. Thus, implementing pop-up storybooks to instill peace-loving characters in early childhood is said to be appropriate to prevent cases arising from children’s lack of understanding regarding peace-loving characters.

CONCLUSION

A pop-up storybook is a collection of three-dimensional pages describing scenes from the story that the author wants to convey. Pop-up story books are also suitable learning media given to early childhood to instill a peace-loving character. In this study, the book was packaged with interesting, creative criteria following early childhood characteristics. From the results of the validator and field trials, scores were generated with the criteria that the book was valid and contained a peace-loving character. In addition, the peace-loving character that the developers wanted to introduce to early childhood through this book included a friendly attitude, forgiving each other, and not holding grudges/hatred between friends. For this reason, further research can be conducted to develop pop-up storybooks to instill other characters.

REFERENCES


