

CHAPTER IV

RESULT AND DISCUSSION

4.1 Result

This section explains in detail the product that has been developed, namely an English Smart Book based on sensory play. The development process of this product is based on the Research and Development (R&D) method, referring to the model proposed by Borg and Gall as cited in Sugiyono (2019). The product is categorized as a learning medium for basic English targeted at young learners, designed in the form of an interactive book that integrates visual, contextual, and sensory approaches. This development is motivated by the need for learning media that not only focuses on cognitive aspects but also accommodates the characteristics of young learners, who tend to be active, exploratory, and learn through direct experience.

The main objective of developing this English Smart Book is to improve the basic English vocabulary of children aged 4–6 years in everyday contexts, as well as to develop fine motor skills through the integration of sensory play activities. In addition, this product aims to create a meaningful and enjoyable learning experience, enabling children to actively engage in the learning process rather than passively receive information. This is particularly important because, at an early age, children tend to understand concepts more effectively through direct interaction with objects and their surrounding environment.

The English Smart Book product consists of several well-organized components, starting from the front and back covers, an introductory section presenting the main character, a visual table of contents designed as an adventure path, and the core sections containing learning materials and interactive activities. The book is completed with a closing section and a simple certificate as a form of appreciation for children's learning achievements. The content is structured into several learning chapters arranged progressively, beginning with alphabet recognition (ABC), followed by vocabulary development under the theme *Everything in the Garden*, color recognition, number recognition (*Let's*

Count 0–20), and ending with a *Fun Challenge and Sensory Play* section as reinforcement and evaluation.

The learning materials presented in this book are developed based on a review of basic English learning for young learners, particularly at the A1 level, gradually progressing toward A2. The material design considers children's cognitive, linguistic, and motor development at the age of 4–6 years, ensuring that the content is easy to understand, not overly complex, yet still provides optimal stimulation. The selection of the garden theme serves as a contextual approach, introducing children to vocabulary related to familiar environments such as fruits, animals, and natural elements. This allows children to connect the language they learn with real-life experiences more effectively.

Furthermore, the main strength of this product lies in the integration of sensory play into the book as a learning medium. The activities are not only visual but also involve tactile experiences through the use of various textures, such as velcro materials, soft fabrics, and different surface elements. Activities such as sticking, touching, matching, and identifying objects are designed to actively engage children while simultaneously developing their fine motor coordination. In addition, the book includes various interactive exercises in each section, such as matching, counting, color recognition, and other simple tasks, all designed in a varied manner to maintain children's interest in learning.

Visually, the English Smart Book is designed using bright colors, engaging illustrations, and a simple layout that is easy to follow, making it suitable for young learners who are highly responsive to visual stimuli. The use of English in the book is adjusted to the children's level of understanding, employing simple sentences and basic vocabulary. Moreover, the inclusion of a simple certificate at the end of the book is intended to provide additional motivation for children to complete all the learning activities.

Through this product, it is expected that children will gain a learning experience that is not only effective but also enjoyable and meaningful. They are not only able to recognize and remember basic English vocabulary but also apply it in their daily lives. Furthermore, through sensory play activities, children

receive stimulation that supports both their sensory and motor development holistically.

The materials in this English Smart Book have undergone a comprehensive development process by adapting the stages of the Research and Development (R&D) method proposed by Borg and Gall, with adjustments made according to the needs of product development. Therefore, the product has gone through stages of design, validation, and revision, and can be considered appropriate for use as a learning medium for teaching English to young learners

4.1.1. Research and Data Collection

The research and data collection stage in the development of English Smart Book: *Mumu's Garden Adventure* is motivated by the need for English learning media for young learners that are not only visually appealing but also interactive and capable of providing meaningful learning experiences. In the initial stage, the researcher identified both the potential and the problems in teaching English vocabulary to children aged 4–6 years. The findings indicate that most existing learning media are still conventional and do not actively engage children in the learning process. As a result, children tend to lose focus easily and have difficulty understanding and remembering vocabulary, as supported by Fitriani and Jannah (2022), who emphasize the importance of interactive media in enhancing language learning effectiveness for children.

Furthermore, the characteristics of young learners show that children learn more effectively through play, exploration, and direct experience. Learning media that rely solely on images and text are insufficient to fully accommodate these needs, as they do not provide adequate stimulation for multiple senses. Therefore, there is a need for learning media that are not only informative but also encourage active participation through enjoyable activities. The sensory play approach offers a relevant solution, as it integrates visual, kinesthetic, and tactile experiences within a single learning activity.

Based on these issues, the researcher designed the English Smart Book: *Mumu's Garden Adventure*, which adopts an adventure theme as the main learning approach. This concept is intended to provide a contextual learning experience, where children are invited to explore their surroundings, such as gardens, animals, and everyday objects. In addition, the use of a main character as a learning guide is intended to enhance children's emotional engagement, making the learning process more dynamic and enjoyable. Through this approach, learning focuses not only on outcomes but also on the overall learning experience.

In terms of design, the book is developed by applying visual design principles suitable for early childhood, namely simplicity, attractiveness, and clarity. The use of bright colors and expressive cartoon-style illustrations aims to capture children's attention and facilitate vocabulary recognition. The layout is carefully arranged by considering visual balance and information hierarchy, allowing children to focus on one activity at a time. This is supported by Kurniawan and Sari (2023), who state that effective visual design can significantly improve learning outcomes.

The book design also integrates sensory play activities such as sticking, touching textures, and matching objects as forms of active learning. These activities not only increase children's engagement but also help develop fine motor skills and hand coordination. Moreover, learning experiences that involve multiple senses have been proven to enhance memory retention in children. This aligns with the findings of Hidayati and Pratiwi (2021), who highlight the effectiveness of multisensory learning in improving the quality of children's learning processes.

In the data collection process, the researcher employed a combined approach of literature review and observation to obtain comprehensive data. The literature review was conducted to understand theories related to English learning for young learners, the concept of sensory play, and principles of effective learning media design. Meanwhile, observation was carried out by reviewing various existing learning media and identifying

their limitations. The results indicate that there is still a lack of learning media that integrate visual design, interactive activities, and sensory experiences simultaneously.

Thus, the research and data collection stage demonstrates that the development of English Smart Book: *Mumu's Garden Adventure* based on sensory play is a relevant solution for teaching English to young learners. The integration of engaging visual design, interactive activities, and sensory experiences is expected to enhance children's engagement and understanding. This product is also expected to provide a more enjoyable and effective learning experience. Furthermore, it has the potential to serve as an innovation in the development of English learning media for early childhood education.

4.1.2 Planning

After identifying potential problems and collecting data as the basis for product development, the next stage is to formulate the product development plan. At this stage, the planning focuses on two main elements, namely determining the content and language of the material, as well as the design of the product to be developed. This planning is carried out systematically to ensure that the resulting product aligns with the characteristics of young learners and is able to provide an interactive learning experience. In addition, this stage serves as the foundation for determining the direction of the development of English Smart Book: *Mumu's Garden Adventure*.

1. Content and Language Development

English Smart Book: *Mumu's Garden Adventure* is designed as a basic English learning book for children aged 4–6 years. Therefore, the content of this book includes English vocabulary related to daily life, such as letters, colors, numbers, and objects in the surrounding environment. The material is presented in a simple manner using short sentences and language that is easy for children to understand. In addition, each section is equipped

with interactive activities such as matching, counting, and color recognition to reinforce children's understanding of the material.

2. Product Design

The initial stage in the product design development process is carried out by establishing a basic framework as a guideline for creating the book. In this context, English Smart Book: *Mumu's Garden Adventure* is designed as an interactive printed learning medium that integrates language learning with sensory play activities. The book is developed by considering visual aspects, interactivity, and ease of use for young learners. In addition, the researcher conducted discussions with the academic supervisor to refine the concept and structure of the book to be developed.

The structure of the book that has been developed is as follows:

- a. Book Title: *Mumu's Garden Adventure*
- b. Preface
- c. Table of Contents (Visual Adventure Map)
- d. GO 1: Let's Learn ABC
 - Introduction to letters A–Z
 - Activities for recognizing and matching letters
- e. GO 2: Everything in the Garden
 - Introduction to vocabulary related to garden objects (fruits, animals, plants)
 - Activities for matching pictures and words
- f. GO 3: Color Time
 - Introduction to primary and secondary colors
 - Color recognition activities
- g. GO 4: Let's Count!
 - Introduction to numbers 0–20
 - Counting activities
- h. GO 5: Fun Challenge & Sensory Play
 - Activities involving sticking, touching textures, and matching objects

- Simple evaluation of all learning materials

i. Certificate

In addition, the physical design of the book is uniquely crafted to enhance children's visual appeal. The book is square-shaped, with added illustrative elements such as protruding cat ears at the top, along with facial details like eyes and whiskers on the front cover representing the main character, a cat named "Mumu." This design choice is not merely aesthetic but also aims to create a strong and easily recognizable visual identity for children. A character-shaped form can also increase children's interest and curiosity toward the learning medium.

Theoretically, the use of character-based forms in children's product design is grounded in the principle of *emotional design* proposed by Donald Norman (2004), which suggests that designs capable of creating emotional attachment can enhance user interest and overall experience. Furthermore, this approach aligns with the principle of visual engagement in instructional design, which emphasizes that unique and familiar forms can improve children's attention and memory retention. Research by Kurniawan and Sari (2023) also indicates that engaging and contextual visual elements can strengthen the effectiveness of learning media.

Thus, the design of the book, which resembles the character of the cat "Mumu," functions not only as a decorative element but also as a strategic design approach to enhance children's engagement. Children tend to be more interested in objects that have unique shapes and resemble characters they are familiar with. This also helps create a more enjoyable and less monotonous learning experience. Therefore, the physical form of the book is designed as an integral part of the overall learning concept.

3. Concept Development

The development of English Smart Book: *Mumu's Garden Adventure* adopts an educational storytelling concept based on adventure, combined with sensory play activities. This concept is chosen to create an enjoyable learning experience through a combination of engaging illustrations,

interactive activities, and a simple storyline. In this book, the main character, a cat named “Mumu,” serves as a guide who invites children to explore various objects in their surroundings. The presence of Mumu is designed to enhance children’s emotional engagement and make the learning process more lively.

The book uses a garden environment as its main setting, as it is closely related to children’s daily lives and helps them understand the vocabulary more easily. In addition, the use of bright colors, expressive cartoon-style illustrations, and a simple layout is intended to capture children’s attention and improve their focus. Sensory play activities, such as touching textures and sticking objects, are also integrated into the design to provide a multisensory learning experience. Through this concept, the book is expected to function not only as a learning medium but also as an enjoyable exploratory tool for young learners.

4.1.3 Preliminary Product Draft

At this stage, the researcher developed the product based on the characteristics and preferences of young children in using learning media, such as the use of bright colors, attractive and engaging characters, and simple yet interactive storytelling. The learning materials were designed according to the basic English language abilities of children aged 4–6 years and were subsequently organized into a structured learning sequence from the beginning to the end of the book. The materials were not only presented in the form of text but were also integrated with illustrations and interactive activities to enhance children's engagement. As a result, the learning process was designed to be more enjoyable and easier for young learners to understand.

The story concept of the English Smart Book *Mumu’s Garden Adventure* was developed around a cat character named Mumu, who serves as a guide throughout the learning process. The storyline was structured as a simple adventure that invites children to explore various objects and

concepts found in their surroundings, such as gardens, animals, colors, and numbers. Each part of the story was designed to connect English vocabulary with contexts that are familiar to children, thereby facilitating comprehension and retention. Through this approach, children are expected not only to learn new vocabulary but also to understand its use in everyday life

a. Cover Design Development

The development of the product design involved several planning stages before the product was ready to be submitted to the academic supervisor. The process began with the creation of the front and back cover designs, followed by the arrangement of page layouts, the development of character illustrations, and the adaptation of the learning content. The first step undertaken by the researcher was designing the cover of the English Smart Book *Mumu's Garden Adventure*, which serves as the book's primary visual identity.

The cover concept was designed using attractive and child-friendly illustrations, featuring a cat character named Mumu as the central visual element. The character was positioned as the main focus of the cover to capture children's attention and create a strong visual connection with the story and learning activities presented throughout the book.

In the design process, several visual aspects were given primary consideration, including color selection, illustrations, typography, and the physical form of the book. The cover was designed using bright colors and cartoon-style illustrations to suit the characteristics of young children, who tend to respond positively to visual stimuli. In addition, the book was shaped to resemble a cat character, incorporating elements such as ears, eyes, and whiskers on the cover to create a unique visual identity that would be easily recognized by children.

Furthermore, the title design, illustration placement, and overall visual composition were arranged in a simple and organized manner to ensure that the cover appeared attractive and engaging without becoming overly crowded. This design approach was intended to capture children's attention while maintaining visual clarity and aesthetic balance.



Figure 4. 1 Book Cover



Figure 4. 2 Back Cover

b. Design Color Palet

The researcher selected a color palette for the design of the English Smart Book *Mumu's Garden Adventure*, dominated by warm pastel tones such as cream, brick red, terracotta, light brown, and pastel pink. These colors were chosen to align with the adventure theme and cheerful atmosphere that the book aims to convey, creating a warm, comfortable, and appealing impression for young children.

In addition, the combination of soft and bright colors was applied to ensure that the visual appearance of the book remained harmonious and child-friendly. The selected color palette was intended to avoid excessive visual stimulation while enhancing children's interest, attention, and focus during reading and learning activities throughout the book.



Figure 4. 3 Color Palet

c. Book Layout Design Development

The layout design of the English Smart Book *Mumu's Garden Adventure* was developed by considering the balance between illustrations, text, and interactive activities to ensure that the content would be easily understood by children aged 4–6 years. Each page was designed using a simple and well-organized layout, allowing children to focus on the learning materials without feeling confused or overwhelmed by excessive visual elements.

The layout was carefully arranged to support both the educational objectives and the overall reading experience. By maintaining a clear structure and appropriate visual balance, the book provides a learning environment that is engaging, accessible, and suitable for young learners.

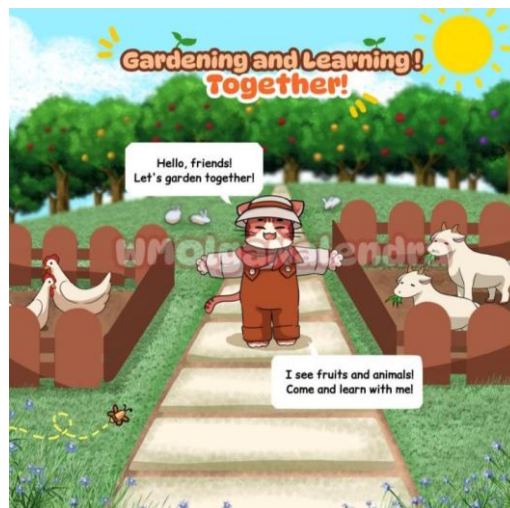


Figure 4. 4 Book Layout Design

The illustrations were designed to be more prominent than the text in order to attract children's attention and help them understand vocabulary through visual representations. In addition, the use of speech bubbles, large titles, and decorative elements such as clouds, the sun, and garden-themed objects was intended to create an enjoyable and interactive learning atmosphere.

On the activity pages, the layout was arranged systematically with adequate spacing between objects to make it easier for children to complete activities such as matching pictures and colors. Furthermore, a combination of bright colors and a balanced layout was applied to enhance the visual appeal of the book while maintaining children's visual comfort during the reading process.

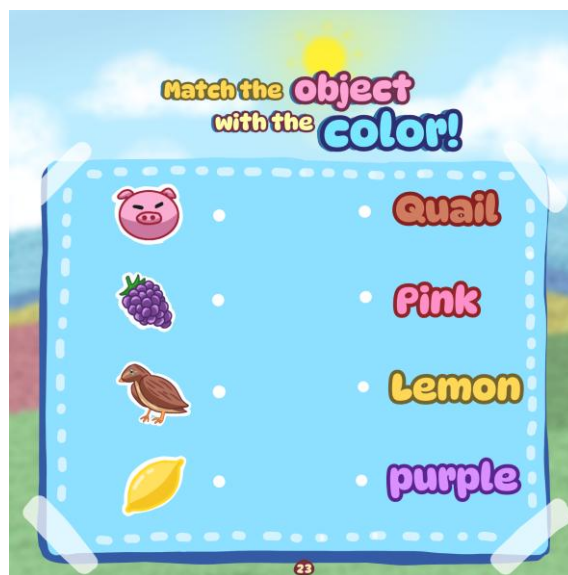


Figure 4. 5 Activity Pages

d. Illustration Development

In developing the illustrations for the English Smart Book *Mumu's Garden Adventure*, the researcher collaborated with an illustrator to create visual content that aligned with the intended concept and design of the book. The illustration process was conducted remotely, with the researcher and illustrator communicating through WhatsApp and Microsoft Teams throughout the development process.

The illustrations were created using the Ibis Paint application. Through this collaboration, the visual elements of the book were designed to support the

learning objectives and to be attractive and appropriate for children aged 4–6 years.

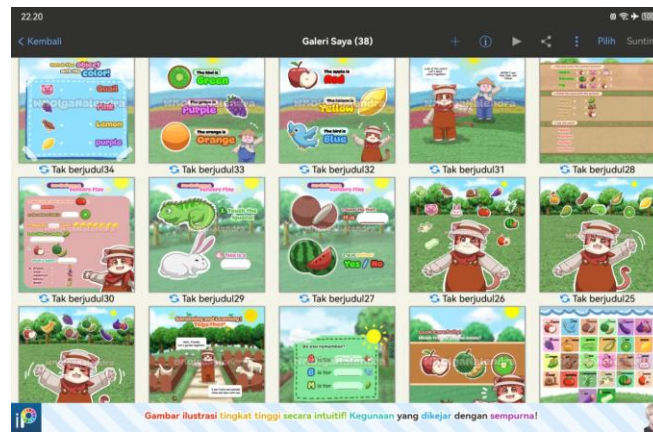


Figure 4. 6 Illustration Made by Ibis Painting

4.1.4 Preliminary Field Testing

After the English Smart Book *Mumu's Garden Adventure* had been fully developed, the product underwent a feasibility testing stage through discussion and expert validation to obtain evaluations and feedback regarding the quality of the designed product. At this stage, the researcher conducted the validation process with the academic supervisor, Mrs. Lilis Lamsehat Panjaitan, S.Pd., M.A., who served as the validator to evaluate the design and content aspects of the product. Based on the validation results, *Mumu's Garden Adventure* was generally considered suitable for use as a sensory play–based English learning medium for young children.

However, the validator provided several suggestions for improvement in specific areas to further enhance the quality of the product. These revisions included adjusting the layout of several visual elements to create a more balanced appearance, improving the clarity of text on certain pages, and increasing color contrast in specific sections to help children focus more effectively on the learning materials and activities provided. In addition, several visual instructions were recommended to be simplified so that they would be easier for children aged 4–6 years to understand.

The following section presents the results of the validation of the design and content aspects conducted by the academic supervisor.

Form Validasi Produk Pembuatan
Buku Mama's Garden Adventure

Validator : Lili Lasmah Pajitua, SNI, M.A.
Hari/Tanggal : Rabu, 03 Juni 2020

Berikanlah tanda centang pada salah satu jawaban yang dipilih (✓)

Aspek Desain

- Konsep desain visual yang dicantumkan sesuai dengan karakteristik anak usia 4-6 tahun.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Pemilihan tema, warna, dan ilustrasi yang dirancang berpotensi menarik perhatian serta minat belajar anak.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Tata letak halaman yang dicantumkan dinilai mampu mendukung penyampaian materi dan alur cerita dengan baik.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Jenis huruf, ukuran huruf, dan elemen visual yang dirancang diperkirakan dapat memudahkan anak dalam menggambar dan menggambar isi buku.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Rancangan desain buku Mama's Garden Adventure berpotensi meningkatkan pengalaman belajar yang menarik, menyenangkan, dan sesuai dengan kebutuhan perkembangan anak usia dini.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
---	------------------------------------	---	-------------------------------------
- Apakah ada informasi tambahan yang perlu ditambahkan ke buku ini? Jika iya, harap jelaskan.

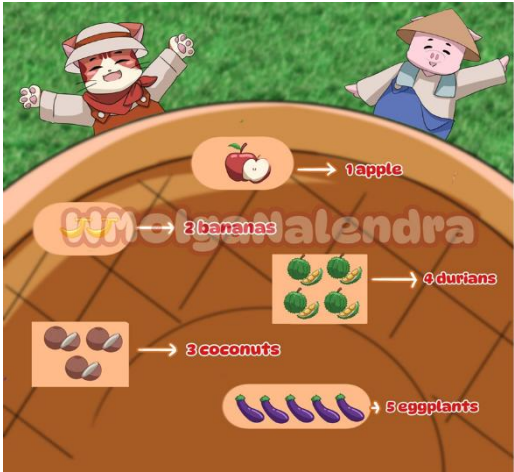
7. Saran
Perbaikan ilustrasi gambar agar lebih menarik.

Figure 4. 7 Preliminary Expert Validation Form

4.1.5 Main Product Revision

Based on the validation conducted by the academic supervisor as the validator, several revisions were recommended regarding the visual design and color contrast of the product. These revisions were made to improve the quality and effectiveness of the learning media in accordance with the validator's suggestions. The results of the revised design are presented as follows:

Table 4. 1 Design and Content Revisions Suggested by the Validator

Before Revision	After Revision
 The UNDIP logo and the author's name were not included.	 The UNDIP logo was added to the upper-left corner, and the author's name was included.
 The number of fruits and the visual illustrations were unclear.	 The number of fruits and the animal illustrations were made clearer and easier to identify.



The orange color of the character did not match the color of the fruit.



The orange color of the character was adjusted to better match the color of the fruit.

**Form Validasi Produk Pembuatan
Buku Mama's Garden Adventure**

Validator : Lili Lamsah Panjaitan, SPd., MA.
Hari/Tanggal : Rabu, 03 Juni 2026

Berikanlah tanda centang pada salah satu jawaban yang dipilih (✓)

Aspek Desain

- Ilustrasi tokoh karakter 'Mama' dan elemen visual pada buku terlihat menarik dan sesuai untuk anak-anak usia 4-6 tahun.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Desain gambar dan latar pada setiap halaman mendukung suasana belajar yang menyenangkan.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Tata letak gambar, angka, dan teks pada buku tersusun rapi sehingga mudah dipahami anak-anak.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Ukuran dan jenis font yang digunakan pada buku mudah dibaca dan jelas.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
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- Tampilan visual buku memberikan kesan interaktif dan membuat anak lebih tertarik belajar bahasa Inggris.

☐ Sangat Tidak Setuju	☐ Tidak Setuju	☒ Cukup Setuju	☐ Sangat Setuju
---	------------------------------------	---	-------------------------------------
- Apakah ada informasi tambahan yang perlu ditambahkan ke buku ini? Jika iya, harap jelaskan.

Informasi karakter lebih lengkap lagi, informasi tentang identitas Mama.
- Saran.

Keseluruhan desain buku masih perlu diperhaluskan lagi.

Figure 4. 8 Main Validation Form

4.1.6 Main Field Testing (Advanced Main Validation)

After revisions were made based on the results of the previous validation, the product underwent a further expert validation stage to ensure that the improvements made were aligned with the objectives of the design development. At this stage, the academic supervisor, acting as the validator, re-evaluated the visual design aspects of *Mumu's Garden Adventure*. The evaluation focused on the visual design concept, the selection of colors and illustrations, page layout, typography, and the suitability of the design for the characteristics of children aged 4–6 years.

The validation results indicated that the developed design had undergone improvements and was considered more suitable for use as a learning medium for young children. The visual concept was regarded as effective in attracting children's attention, while the selected illustrations and colors were considered appropriate for the theme of the book. In addition, the page layout was evaluated as being more organized and easier for children to understand.

Furthermore, the design of the main character, Mumu, was considered successful in strengthening the visual identity of the book and supporting a more engaging learning experience. Overall, the validator concluded that the design of *Mumu's Garden Adventure* was suitable for use and could proceed to the operational product revision stage before the final product was produced.

4.1.7 Operational Product Revision

Based on the results of the product validation using the assessment instrument, the validator stated that *Mumu's Garden Adventure* had met the feasibility criteria in terms of content, design, audio, and sensory play activities. In general, no substantive revisions were recommended for the developed product. The validator considered the integration of audio through QR codes to be appropriate for supporting the learning of English vocabulary among young children. In addition, the sensory play activities presented in the Fun Challenge & Sensory Play section were considered suitable for the characteristics and learning needs of children aged 4–6 years.

Therefore, no revisions were made to the content, audio materials, or sensory play activities at this stage. The product was considered ready to proceed to the operational field testing stage in order to obtain feedback from potential users.

4.1.8 Operational Field Testing

After the product was declared feasible based on the results of expert validation, the next stage was operational field testing, which aimed to determine the feasibility of and responses to the developed product. This testing was conducted online through Google Forms to obtain data and feedback from respondents regarding the content, design, and use of the product in early childhood learning activities.

The operational field testing involved 11 respondents who met the criteria of being Kindergarten A and Kindergarten B teachers teaching children aged 4–6 years. The respondents came from diverse teaching backgrounds and experiences, enabling them to provide varied evaluations and suggestions regarding the developed product. Through this stage, the researcher obtained evaluation results that served as important considerations in determining the feasibility of the product before its implementation in the learning process. The following section presents the details of the respondents involved in the testing process.

Table 4. 2 Number of Respondents in the Product Trial

Type of Respondent	Number of Respondents
Kindergarten A Teachers	6
Kindergarten B Teachers	5
Total	11

All respondents were asked to evaluate the developed product. The product was distributed to all teachers at TK Karangturi who teach Kindergarten A and Kindergarten B classes. The respondents were given sufficient time to read, understand, and review the content and design of the product before completing the evaluation. Following this review process, the researcher distributed a questionnaire containing various evaluation indicators, including the relationship between illustrations and children's learning interest, the use of appropriate language features, font type and size, color selection, layout design, and the suitability of the quizzes and storyline for children aged 4–6 years. Each indicator consisted of several statements designed to assess the quality of the product and the extent to which the learning medium could provide an engaging, effective, interactive, and user-friendly learning experience for young children.

Feedback was collected through an online Google Form consisting of eleven evaluation statements. Respondents were asked to indicate their level of agreement by selecting one of four rating scales: 4 for Strongly Agree, 3 for Agree, 2 for Disagree, and 1 for Strongly Disagree. In addition to the rating scale, the questionnaire included open-ended questions that allowed respondents to provide comments, critiques, and suggestions regarding the developed product. All statements in the questionnaire were subsequently categorized into three main aspects, which served as indicators for assessing the feasibility of the developed product. These aspects were used to evaluate the overall quality and suitability of the learning medium for early childhood English language learning.

Table 4. 3 Product Trial Questionnaire Statements

No	Statement
Design Aspect	
1.	The illustrations of the character <i>Mumu</i> and the visual elements in the book are attractive and appropriate for children aged 4–6 years.

2.	The design of the images and backgrounds on each page supports an enjoyable learning atmosphere.
3.	The arrangement of images, numbers, and text in the book is well organized and easy for children to understand.
4.	The font size and type used in the book are clear and easy to read.
5.	The visual appearance of the book creates an interactive impression and increases children's interest in learning English.
Content Aspect	
6.	The English vocabulary presented in the book is easy for children aged 4–6 years to understand.
7.	The simple sentences in the book are easy for children to pronounce and imitate.
8.	The vocabulary taught in the book is related to children's daily lives, particularly the themes of gardening and fruits.
9.	The use of A1–A2 language levels in the book is arranged progressively according to children's abilities.
10.	The content of the book is appropriate for the characteristics and developmental stage of children aged 4–6 years.
Audio Aspect	
11.	The audio QR code in the book is easy to scan using a mobile phone.
12.	The audio accessed through the QR code is clear and easy for children

	to understand.
13.	The audio helps children learn the correct pronunciation of the vocabulary.
14	The speed of speech in the audio is comfortable for children to follow.
15.	The use of audio QR codes makes learning more engaging and interactive for children.

After the respondents completed the questionnaire, the collected data were processed to determine whether the developed product met the established feasibility criteria. The responses obtained from the questionnaires distributed by the researcher were then analyzed and calculated using a Likert scale. The following section presents the results of the respondents' evaluations of the developed product.

Table 4. 4 Results of the Questionnaire Using the Likert Scale

Aspect	Statement Number	Scale				Mean Score	Mean Score of Aspect
		1	2	3	4		
Design Aspect	1	0	0	7	4	3,36	3,24
	2	0	0	8	3	3,27	
	3	0	1	9	2	3,18	
	4	0	0	9	2	3,18	

	5	0	0	7	3	3,18	
Content Aspect	6	0	1	8	2	3,09	3,14
	7	0	0	9	2	3,18	
	8	0	0	9	2	3,18	
	9	0	0	8	2	3,09	
	10	0	0	9	2	3,18	
Audio Aspect	11	0	0	9	2	3,18	3,18
	12	0	0	9	2	3,18	
	13	0	0	9	2	3,18	
	14	0	0	9	2	3,18	
	15	0	0	9	2	3,18	
Overall Mean Score							3,19

The table above presents the evaluation results of various aspects of *Mumu's Garden Adventure*. Based on the responses provided by the participants, namely the Kindergarten A and Kindergarten B teachers at TK Karangturi, *Mumu's Garden Adventure* achieved an overall mean score of 3.19 out of a maximum score of 4.00. This result indicates that the developed product falls within the *Very Good* category and is therefore considered suitable for use as an English learning medium for young children. The evaluation was conducted based on three main aspects: design, content, and audio and sensory play. These aspects were used to assess the overall quality, effectiveness, and appropriateness of the product for children aged 4–6 years.

The design aspect obtained a mean score of 3.24, indicating that the visual appearance of the book was considered attractive and appropriate for the characteristics of young children. The use of bright colors, communicative illustrations, the character *Mumu*, and a simple layout were perceived as effective in capturing children's attention and increasing their interest in learning. Overall, the evaluation results provided by the Kindergarten A and Kindergarten B teachers at TK Karangturi demonstrate that *Mumu's Garden Adventure* possesses good quality in terms of design, content, and supporting learning features. Therefore, the product is considered suitable for use as a sensory play–based English learning medium for young children.

4.1.9 Final Product Revision

Based on the product trial conducted by distributing questionnaires to 11 respondents, the researcher received several suggestions and recommendations for improvement. The researcher first identified the feedback that needed to be considered in the evaluation of the final product before making revisions. Subsequently, the researcher consulted with the academic supervisor to ensure that the developed product was aligned with the intended objectives and development aspects. After obtaining approval from the supervisor, the researcher proceeded with the final product revision stage, as described below:

Based on the feedback received from the respondents, lowercase letters were added to the ABC section so that readers, especially young children, could learn both uppercase and lowercase letters simultaneously. Therefore, the researcher incorporated lowercase letters to improve the readability and educational value of *Mumu's Garden Adventure*, making the learning content clearer and more effective for children..

Table 4. 5 Final Product Revision – Addition of Lowercase Letters

Before Revision	After Revision

Table 4. 6 Final Product Revision – Chapter Title Modification

Before Revision	After Revision

In addition, respondents provided feedback regarding the chapter titles displayed on the chapter map page. Based on this suggestion, the researcher revised the chapter titles by replacing them with the word “GO” in order to create a more enjoyable and engaging experience for children when opening and exploring each section of the book.

Based on the results of the design expert validation conducted by Lilis Lamsehat Panjaitan, S.Pd., M.A., *Mumu’s Garden Adventure* received a Strongly Agree rating for all assessed aspects. The validator stated that the visual design, color selection, illustrations, page layout, and font size were appropriate for children aged 4–6 years. In addition, the integration of images, text, and learning activities was considered effective in supporting the delivery of the learning materials. The validator also noted that no additional information needed to be added to the book. Overall, *Mumu’s Garden Adventure* was considered suitable for use as an English learning medium for young learners because it meets the needs of its target users.

**Form Validasi Produk Pembuatan
Buku Mumu's Garden Adventure**

Validator : Lilis Lamsehat Panjaitan, SPd, M.A.
Hari/Tanggal : Rabu, 03 Juni 2026

Berikanlah tanda centang pada salah satu jawaban yang dipilih (✓)

Aspek Desain				
1. Desain visual buku Mumu's Garden Adventure telah sesuai dengan karakteristik dan tahap perkembangan anak usia 4-6 tahun				
☐ Sangat Tidak Setuju	☐ Tidak Setuju	☐ Cukup Setuju	☒ Sangat Setuju	
2. Pemilihan warna, ilustrasi, dan karakter dalam buku mampu menarik perhatian serta minat belajar anak				
☐ Sangat Tidak Setuju	☐ Tidak Setuju	☐ Cukup Setuju	☒ Sangat Setuju	
3. Tata letak halaman, jenis huruf, dan ukuran huruf telah memudahkan anak dalam membaca dan memahami isi buku				
☐ Sangat Tidak Setuju	☐ Tidak Setuju	☐ Cukup Setuju	☒ Sangat Setuju	
4. Kesesuaian antara gambar, teks, dan aktivitas pembelajaran telah mendukung penyampaian materi secara efektif				
☐ Sangat Tidak Setuju	☐ Tidak Setuju	☐ Cukup Setuju	☒ Sangat Setuju	
5. Secara keseluruhan, desain buku Mumu's Garden Adventure telah menarik, kreatif, dan layak digunakan sebagai media pembelajaran bahasa Inggris bagi anak usia dini				
☐ Sangat Tidak Setuju	☐ Tidak Setuju	☐ Cukup Setuju	☒ Sangat Setuju	
6. Apakah ada informasi tambahan yang perlu ditambahkan ke buku ini? Jika iya, harap jelaskan				
Tidak ada tambahan.				
7. Saran				
Sudah sesuai dengan kebutuhan target users.				

Figure 4. 9 Final Product Validation

4.1.10 Dissemination and Implementation

After all stages of development and revision of the English Smart Book *Mumu's Garden Adventure* had been completed, the product entered the dissemination stage as a means of distributing the results of the learning media development. The book was designed as an English learning medium for young children, featuring an attractive visual appearance, simple design, and content that is appropriate for the characteristics of children aged 4–6 years. In addition, the researcher plans to register the book for copyright protection through the Directorate General of Intellectual Property (DGIP) via its official website. This registration is intended to provide legal protection for the developed work and to establish official recognition of its ownership.

Furthermore, *Mumu's Garden Adventure* will be printed as the final product of the research and development process. The printed version of the book will serve as part of the academic requirements for the completion of the undergraduate thesis and as an example of a learning medium that is ready to be implemented in teaching and learning activities. It is expected that this book will serve as a creative learning medium that supports the introduction of basic English vocabulary in a more enjoyable, interactive, and engaging way for young children.

During the implementation stage, the researcher plans to introduce and utilize *Mumu's Garden Adventure* with teachers and young children as a supporting medium for basic English language learning in kindergarten. The use of colorful illustrations, engaging characters, and simple activities within the book is expected to create a more active, enjoyable, and interactive learning environment for children. In addition, the researcher will present the results of the product development during the thesis defense before the academic supervisor and examiners as a means of communicating the outcomes of the research and development process that has been conducted.

4.2 Discussion

The findings of this study indicate that the implementation of visual design in *Mumu's Garden Adventure* plays a significant role in creating an engaging learning

medium that is appropriate for young children. The use of consistent illustrations, pastel color combinations, readable typography, and an organized layout enhances both readability and children's comfort while using the book. In addition to serving as aesthetic elements, the visual design helps clarify the presentation of learning materials and supports children's understanding of the English vocabulary presented throughout the story. Therefore, visual design serves as one of the key factors contributing to the effectiveness of the developed learning medium.

The findings are consistent with previous studies emphasizing the importance of visual design in educational media for young learners. According to Smaldino et al. (2019), visual design functions not only to attract learners' attention but also to facilitate the communication of information. In *Mumu's Garden Adventure*, illustrations were intentionally designed to represent the target vocabulary visually, enabling children to associate words with concrete images. This finding supports Mayer's Cognitive Theory of Multimedia Learning. According to Mayer (2021), learners understand information more effectively when verbal and visual representations are presented together. As a result, illustrations in the book serve both aesthetic and instructional purposes.

Another important aspect identified in this study is the use of color. The pastel color palette was selected to create a visually comfortable learning environment while maintaining children's interest. Ambrose and Harris (2011) argue that color is a fundamental element of visual communication because it influences attention, perception, and emotional responses. The positive responses observed during product trials suggest that the chosen color combinations successfully enhanced the attractiveness of the book and encouraged children's engagement with learning activities. This finding is in line with previous research indicating that appropriate color selection can increase motivation and sustain children's attention during educational tasks.

Typography also contributed significantly to the effectiveness of the learning medium. Readability is particularly important in materials designed for young children who are still developing early literacy skills. According to Williams (2015), typography should prioritize clarity and accessibility to ensure that

information can be processed easily by readers. The use of simple and readable fonts in *Mumu's Garden Adventure* helped children identify vocabulary items and follow learning activities without unnecessary difficulty. Consequently, typography functioned as an important design element that supported both learning and user experience.

Furthermore, the organized layout contributed to the overall usability of the book. Lidwell et al. (2010) explain that effective layouts help users process information efficiently by establishing visual hierarchy and maintaining consistency throughout a design. In this study, the arrangement of text, illustrations, and sensory play activities was carefully organized to avoid visual clutter and guide children's attention toward the intended learning objectives. This design approach enabled children to interact with the book more independently and comfortably.

Overall, the findings suggest that the effectiveness of *Mumu's Garden Adventure* is influenced not only by the learning content but also by the deliberate application of visual design principles. The integration of illustrations, color, typography, and layout created a cohesive learning experience that supported comprehension, engagement, and vocabulary acquisition. These findings reinforce the importance of applying visual communication and instructional design principles when developing educational media for young learners.