



The Development of a Flipbook-Based on Unggah – Ungguh for a Student at a Senior High School

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Abstract: This study aims to develop a digital learning medium in the form of a flipbook-based e-book to enhance the understanding of unggah-ungguh – the levels of speech in the Javanese language – among tenth-grade students at SMAN 1 Gebog Kudus. The research employed a development model adapted from Sugiyono, consisting of several stages: needs analysis, data collection, product design, expert validation, and product revision based on feedback. The validation results indicated that the Javanese unggah-ungguh flipbook-based e-book was feasible for use in learning, with positive evaluations in terms of content relevance, language clarity, visual design, and media usability. Moreover, the e-book was considered capable of increasing student interest in a topic that was previously seen as challenging and less engaging. The findings suggest that interactive digital learning media can serve as an innovative solution in Javanese language instruction, as they present materials in a more engaging and student-friendly manner, align with students' needs, and are compatible with technological advancements in today's educational landscape.

Abstrak: Penelitian ini bertujuan untuk mengembangkan media pembelajaran digital berupa e-book berbasis flipbook guna meningkatkan pemahaman siswa kelas X SMAN 1 Gebog Kudus terhadap materi unggah-ungguh, yaitu tingkat tutur dalam bahasa Jawa yang merefleksikan tata krama dalam berbahasa. Metode penelitian yang digunakan adalah model pengembangan yang dimodifikasi dari Sugiyono, dengan tahapan meliputi analisis kebutuhan, pengumpulan data, perancangan produk, validasi oleh ahli materi dan media, serta revisi produk berdasarkan masukan yang diperoleh. Hasil validasi menunjukkan bahwa e-book unggah-ungguh bahasa Jawa berbasis flipbook ini layak digunakan dalam pembelajaran, dengan penilaian positif terhadap aspek isi, kebahasaan, tampilan visual, dan kegunaan media. Media ini juga dianggap mampu meningkatkan ketertarikan siswa terhadap materi yang sebelumnya dinilai sulit dan kurang diminati. Implikasi dari penelitian ini menunjukkan bahwa media pembelajaran digital yang interaktif dapat menjadi solusi inovatif dalam pembelajaran bahasa Jawa, karena mampu menyajikan materi secara lebih menarik, relevan dengan kebutuhan siswa, serta sesuai dengan perkembangan teknologi pendidikan di era digital saat ini.

A. Introduction

Javanese language learning in schools is not entirely in line with regional regulations regarding the teaching of regional languages. In fact, Javanese language subjects play a significant role in shaping students' character. This is as stated in the Central Java Governor Regulation Number 424 (2013) concerning the Implementation of Javanese Local Content as Compulsory Local Content in Central Java. One of the materials taught in Javanese language learning is *unggah-ungguh*. *Unggah-ungguh basa* is one of the materials given at the Senior High School level, grade X. In the 2022 Central Java Provincial Government curriculum decree, the learning outcomes for the material on *unggah-ungguh* are that students are expected to be able to use Javanese in accordance with linguistic rules (*paramasastra*) and *unggah-ungguh* to convey information in the form of ideas, thoughts, feelings, views, directions, or accurate messages from non-literary texts. Learning elements that align with the learning outcomes of *unggah-ungguh* include speaking and writing elements.

This article focuses on the speaking elements in polite language material. *Unggah-ungguh* is generally related to manners. As explained by [Arfianingrum \(2020\)](#), *unggah-ungguh* refers to the level of speech in the Javanese language. In line with this opinion, [Sukoyo \(2022\)](#) also defines *unggah-ungguh* as the customs of *unggah-ungguh* in Javanese, which are not only related to language levels but also attitudes. In this case, the structure of Javanese grammar is broadly divided into two, namely the *ngoko* variety and the *krama* variety ([Sasangka, 2019](#)). *Unggah-ungguh* is very important to learn because it is a significant part of the Javanese identity. [Wulandari \(2021\)](#) explains that studying *unggah-ungguh* will, of course, develop students' characteristics. However, in reality, many students still do not understand the concept of *unggah-ungguh*.

Observation results at SMAN 1 Gebog Kudus indicate that students continue to struggle with implementing manners according to their customs, even within their own family environments. This is supported by the findings of [Fatmawati & Wiranti \(2023\)](#), which explain that many students still lack proficiency in speaking Javanese and tend to communicate in Indonesian. Students' interest in learning manners is also below average. This is because learning resources about manners are limited. So far, most Javanese teachers at SMAN 1 Gebog Kudus have primarily used textbooks, PowerPoint presentations, and materials developed by teachers to teach manners. Students also do not hold supporting learning books. Additionally, teachers have not utilized interactive learning media. In the independent curriculum, teachers are required to be more creative in their approach to learning and also adjust to students' individual needs ([Aghni et al., 2023](#)).

The use of media in learning is important because it has various benefits. The use of learning media makes it easier for students to understand learning materials ([Gawise et al., 2022](#)), which were initially abstract and challenging to comprehend. Punaji also explained that learning media is an essential part of determining the effectiveness and efficiency in achieving learning goals ([Miftah, 2022](#)). The use of media in learning activities can also raise enthusiasm, increase learning motivation, and have an impact on children's psychology ([Dwiqui et al., 2020](#)). This means that learning media plays a vital role in teaching and learning

activities.

The development of learning media needs to be adjusted to the times. In this case, technological advancements can be leveraged to design engaging, interactive, and innovative learning media (Ningsih & Ulya, 2024). Interactive learning media that can be used to teach writing material are e-books. Ambarwati et al (2022) explain that e-books are defined as book publications that are available in digital form, which consist of images, text, audio, and video. In line with Ambarwati's opinion, Raharjo also explains that e-books represent the evolution of printed books into multimedia-based digital books (Nazhiroh, 2021).

Learning media in the form of e-books are in great demand by students because they have several advantages. Suwarno & Rahmatullah (2020) stated that the use of e-books is considered practical and also has many fans. This e-book can also be opened on a smartphone, laptop, or other device screen (Ningsih & Ulya, 2024). In this case, the e-book developed from the Javanese language etiquette material will be equipped with visualizations, videos illustrating everyday applications, and assessments.

The device used to create this e-book is a flipbook. Ayuardini (2023) explains that a flipbook is a digital form based on three-dimensional e-book technology, which allows users to open screen pages as if reading on a monitor screen. In line with this opinion, Silalahi & Budiono (2023) noted that a flipbook is a digital book that supports multiple formats, including audio, video, images, charts, and text. The appearance of this interactive flipbook-based e-book will be presented on a website.

Research related to the use of e-books as a learning medium has been conducted by Arimbi & Pramesti (2020), who developed a zero-waste lifestyle e-book based on Islamic science, focusing on environmental change and preservation. Anindia et al (2023) also utilized e-books as an intermediary in shaping the morality of Gen Z in the digital era. Upon closer examination, it appears that there has been no development of an e-book on polite language specifically designed for high school students.

Several studies on Javanese language etiquette learning have previously been conducted by Septiani (2020), who taught Javanese etiquette to grade VI students using multimedia development products. Hasanah & Nurhayati (2023) have also studied the application of the singing method in learning etiquette to enhance students' vocabulary memory, while Susanti (2023) utilized word-guessing learning media to improve Javanese vocabulary mastery. Thus, no research has been found that develops etiquette media in the form of e-books with flipbook devices.

In addition, research related to the use of flipbook devices in learning activities has been conducted by Ramadhina & Pranata (2022), who developed teaching materials in the form of electronic modules (e-modules) based on flipbook applications on the life cycle of living things. Yani et al (2022) have also developed e-book media based on flipbooks to foster 21st-century skills and understand the profile of Pancasila students.

Based on previous studies, no one has developed a Javanese language *unggah-ungguh* e-book assisted by a flipbook device. Therefore, this study focuses on the development of a

Javanese *unggah-ungguh* e-book based on flipbooks for class X students of SMAN 1 Gebog Kudus. The difference between the e-book in this study and previous studies lies in the content of the material to be delivered. This e-book will later contain Javanese *unggah-ungguh* material, including language varieties, as well as examples of applications adjusted to the E phase level. Additionally, the e-book design process utilizes the Canva application to add accents to other supporting elements.

The novelty of this study lies in the development of a flipbook-based e-book learning medium that specifically presents *unggah-ungguh* material for 10th-grade high school students. Unlike previous studies that focused on general moral values, singing methods, or word games in manners instruction, this research introduces an interactive and visually engaging digital medium that delivers Javanese language levels (*ngoko*, *madya*, *krama*) in the context of *unggah-ungguh* through a flipbook format designed using Canva. This study is also the first to develop *unggah-ungguh* learning media in flipbook form aligned with Phase E of the Merdeka Curriculum, and tailored to the contextual needs of students and teachers at SMAN 1 Gebog Kudus. Thus, this e-book not only enriches learning experiences but also supports the development of digital literacy and the preservation of local cultural values through technology-enhanced education.

This study aims to (1) explain the needs of students and teachers for Javanese language *unggah-ungguh* learning media, (2) explain the prototype of Javanese language *unggah-ungguh* e-book media based on flipbooks, and (3) explain the results of media and material expert validation of the *unggah-ungguh* e-book media. With the development of this flipbook-based Javanese *unggah-ungguh* e-book, students' understanding of language varieties and their application can certainly be improved. In addition, this study provides access to flexible learning materials, and the e-book also supports the development of students' digital skills, offering additional resources to enrich learning methods.

B. Method

This study employed a Research and Development (R&D) approach, adapting the model by Borg and Gall, simplified according to Sugiyono (2022) framework. While the original model includes ten stages, this research adopted the first five stages to streamline the development process and focus on essential product validation. These five stages were: (1) Needs analysis, (2) Data Collection, (3) Product Design, (4) Design Validation, and (5) Product Revision. This simplification was intended to enhance time efficiency and reduce the complexity of the development process, thereby minimizing potential errors and enabling more focused product validation and improvement.

The process was specifically adapted to develop a flipbook-based Unggah-Ungguh e-book for students at SMAN 1 Gebog Kudus. The five stages are illustrated in Figure 1. The study involved one Javanese language teacher and 38 tenth-grade students from SMAN 1 Gebog Kudus. The teacher served as a key informant, providing insights into instructional needs and curriculum requirements. The student participants contributed feedback on their

experiences, challenges, and needs regarding the learning of *ungguh*. Participants were selected using purposive sampling to ensure alignment with the study objectives.

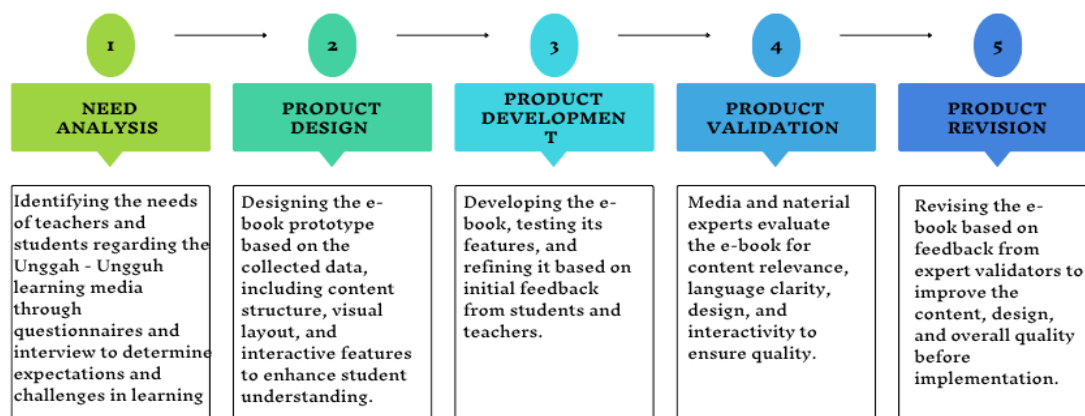


Figure 1. Research Model Flowchart

The data from the needs analysis and the prototype description of the *unggah-ungguh* e-book media that had been developed were then analyzed qualitatively and descriptively. On the other hand, the validation data from media experts and material experts were analyzed quantitatively and descriptively using a Likert scale. The product eligibility criteria are shown in Table 1.

Table 1. Score Interpretation Criteria

Percentage Interval	Mark
< 21 %	Totally Unworthy
21 % - 40 %	Not feasible
41 % - 60 %	Quite Decent
61 % - 80 %	Worthy
81 % - 100 %	Very Worthy

(source: Sugiyono, 2022)

The score is determined by calculating the percentage using the following formula.

$$NP = \frac{R}{SM} \times 100\%$$

(Source: Sugiyono, 2022)

Figure 2. Percentage Score Calculation Formula

Information:

NP = Percentage value sought

R = score obtained

SM = Overall maximum score

C. Result

Need Analysis for the Development of the *Ungguh - Ungguh* E-book

The initial stage of the development research involves analyzing the needs of students and teachers at SMAN 1 Gebog Kudus related to flipbook-based *ungguh-ungguh* learning media. Data were obtained through a questionnaire completed by 38 grade X students and interviews with Javanese language teachers at SMAN 1 Gebog Kudus. From this analysis, data were obtained indicating that 23.6% of students were less interested in learning '*ungguh*' in Javanese. As many as 42.1% of students stated that they did not understand the variety of languages, indicating that this lack of understanding may contribute to students' difficulties in communicating with their parents. As many as 28.8% of students stated that they had not applied *ungguh* in their daily lives. This will undoubtedly have an impact on the formation of students' character both in the family and school environment.

Based on the data, 66.5% of students reported difficulty understanding vocabulary in the Javanese language. This problem certainly makes students feel anxious and hesitant in speaking, thus reducing the opportunity to practice and improve language skills. As explained by [Insani & Mulyana \(2019\)](#), without adequate vocabulary mastery, language skills are not optimal, and students are less than optimal in following the Javanese language learning process. Other data also indicate that as many as 18% of students struggle to apply the correct level of etiquette according to their customs. This condition certainly makes students considered impolite in their behavior. This aligns with [Arfianingrum \(2020\)](#) opinion, which explains that etiquette reflects manners and *ungguh-ungguh* behavior when interacting with others. The opinion of Mrs. Tiwi also confirms this as a Javanese language teacher, where there are still many students who are still confused and do not even know how to use *undha-usuk basa* properly.

Furthermore, 15.5% of students stated that they were accustomed to using Indonesian rather than Javanese in their daily lives. The more dominant use of Indonesian has reduced students' ability to speak Javanese, and this phenomenon can indirectly erode regional languages, potentially leading to their gradual disappearance ([Fatmawati & Wiranti, 2023](#)). Teachers also admit that it is challenging to teach manners because students often use Indonesian more frequently when communicating with each other. The learning resources used by students, as indicated by the data obtained, show that 55.2% of students still rely on textbooks as their primary reference. However, it should be noted that most of the materials used in the textbook do not fully align with the Learning Outcomes of the material on *ungguh-ungguh*.

Additionally, as many as 47.3% of students reported using the internet as an additional learning resource. This is reinforced by the results of an interview with a Javanese language teacher at SMAN 1 Gebog Kudus, who explained that students' enthusiasm for learning Javanese *ungguh* is very minimal. The underlying factors are the lack of learning resources and the absence of learning media in the learning process.

With the field conditions that are still lacking in terms of the use of learning media, teachers agree to the development of digital-based interactive learning media in the form of e-books for Javanese language etiquette material in class X. It is hoped that after the media is available, it can increase students' interest in learning Javanese language etiquette and also make the student learning process more interesting. Regarding the development of Javanese language etiquette learning media, teachers choose the Javanese *krama inggil* language variety and Indonesian to convey the material in the e-book.

a. Prototype of the *Unggah – Ungguh* E-book

The e-book prototype is based on the needs of students and teachers for Javanese language *unggah-ungguh* learning media. The media prototype developed is a Javanese *unggah-ungguh* media in the form of a digital book, assisted by Heyzine software and equipped with descriptions of the *unggah-ungguh* material, video examples, and interactive assessments.

The initial display features the title of the e-book learning media, namely *Sinau Unggah – Ungguh Basa (SINUBA)*, set against a brown background. The choice of brown is due to its interpretation as conveying an elegant, neutral, and modern impression (Zharandont, 2015). At the same time, Nurdini et al (2018) also explained that the use of brown indicates warmth and is also down-to-earth. The use of brown in the title and throughout the contents of this material also makes the writing easy to read and provides contrast when viewed.

Several additional illustrations also accompany this initial display. Illustrations are essential in books because they enhance the appeal and stimulate the reader's imagination (Syarif et al., 2013). The design of the cover display is shown in Figure 3.



Figure 3. E-book Cover Page

The title of this e-book is *Sinau Unggah–Ungguh Basa*, which is then abbreviated as *SINUBA*. The reason for choosing the title is to reflect the purpose of this e-book, namely, to learn Javanese *unggah-ungguh* according to its level in everyday life. It is then abbreviated as *sinubato* to be more concise and also to become the author's branding. The second cover design is shown in Figure 4.



Figure 4. E-book Cover Page

The e-book call (usage) menu section contains subtitles, how to use the e-book, and also parts of the e-book. The usage menu in this e-book serves as a navigation tool or signpost for users (Sonia & Yuliani, 2023). The appearance of the e-book call menu is seen in Figure 5.



Figure 5. Menu Page Pangginaan E-book

The content section of the Javanese *unggah-ungguh* e-book media includes general *unggah-ungguh* material, application examples, and exercises. The content of the e-book media consists of four menus: *Pangajab Pasinaon*, Material, Video Examples, and Exercises. The explanation is as follows;

The learning achievement menu contains the learning achievements and learning objectives of this e-book, namely: 1) students can understand the concept of *unggah-ungguh*, 2) students can know the levels or varieties of Javanese, and 3) students can apply *unggah-ungguh* according to their level. The appearance of the *pangajab pasinaon* menu can be seen in Figure 6.

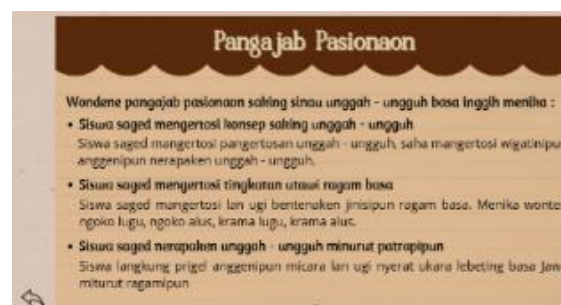


Figure 6. Pangajab Pasinaon Menu Page

In the material menu, it begins with a table of contents, which lists the materials in the e-book. *unggah - ungguh* this. This table of contents is designed as a hyperlink that goes directly to the clicked page. This hyperlink feature is essential, especially in interactive media, as it facilitates navigation to other sections of the content. The hyperlink feature in digital learning is one of the essential elements that support accessibility, flexibility, and the effectiveness of interactive learning media (Ihsan, 2022). Figure 6 displays the table of contents menu.



Dhaptar Isi	
Halaman Sampul	
Daftar Isi	v
BAB 1. Menapa ta unggah - ungguh merika ?	1
BAB 2. Jinisipun Ragam Basa	6
BAB 3. Kalepatan Anggeripun Basa	37
Tuladha Video	88
Gladhen	88
Bananastra	60
Dhaptar Tembung	61
Dhaptar Pustaka	66

Figure 7. Table of Contents Menu Page

Next, in Chapter 2, there is material on the types or varieties of language. In Figure 8, you can see the varieties of the Javanese language, consisting of *ngoko lugu*, *ngoko alus*, *krama lugu*, and *krama alus* (Sukoyo, 2022). In each menu of the language variety, a hyperlink has been connected to make it easier for students to read the intended page.



Figure 8. Materials Page

In chapter 2, there are also examples of the varieties that have been explained in the previous material. The examples presented are in the form of dialogues, categorized by the type of variety, and are illustrated in Figure 9.

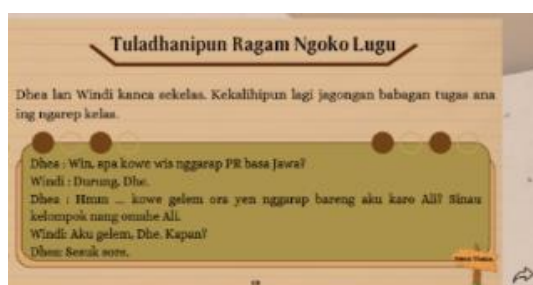


Figure 9. Materials Page

The following menu is *Tuladha* video, which contains examples of the application of various types of languages. The videos presented are sourced from the TikTok platform and YouTube. To display the video, students can click the laptop icon on the page. It can be seen in Figure 10.



Figure 10. *Tuladha Video Page*

Figure 11 contains questions to determine student learning achievement. The media used in this *lesson* menu are Wordwall and Kahoot. The questions are also equipped with instructions to guide students through their completion, ensuring they do not encounter difficulty.



Figure 11. *Gladhen Page*

The closing section of the *unggah-ungguh* e-book contains several menus. Among them are the *Bausastra* menu, the *Dhaptar Tembung* page, and the *Dhaptar Pustaka* or reference. The explanation is as follows:

This menu contains *bausastra* packaged into a barcode, as well as a link that directly leads to the *bausastra* website. *Bausastra* is a monolingual dictionary that contains Javanese language entries, including the *undha usuking tembung*, the generality or otherwise of the word being searched for, the main denomination of the definition, subthemes (*tembung andhahan*), and descriptions. Can be seen in Figure 12.



Figure 12. Bausastra Page

The dhaptar tembung page presents several lists of frequently used vocabulary presented in a table, accompanied by other Javanese language varieties. This page becomes a valuable tool to help students start learning and expand their vocabulary. This aligns with [Susanti \(2023\)](#) opinion, which explains that the quality of a person's language skills can be measured by the number of vocabulary variations mastered. In addition, there is also a bibliography page containing references used in compiling this *unggah - ungguh* e-book.

b. Expert Validation Test

The next stage after developing the flipbook-based *unggah-ungguh* e-book media prototype is validation carried out by material experts and media experts. Prototype validation is carried out by submitting media links and assessment sheets to the validator. The media expert validation questionnaire comprises two aspects: graphic feasibility aspects and presentation aspects, with 14 assessment items. The material expert validation questionnaire, on the other hand, contains 20 assessment items, consisting of content feasibility aspects, presentation feasibility aspects, and language feasibility aspects.

c. Media Expert Validation Results

Based on the media expert's assessment of the Javanese language e-book, it obtained a score of 42 out of a maximum score of 56, corresponding to a percentage of 75%. Based on the validation results, the Javanese language e-book media, utilizing flipbooks, was deemed suitable for use as a language learning medium, with improvements made in accordance with suggestions and input from the validator. The recapitulation of the expert media validator's assessment is shown in Figure 13.

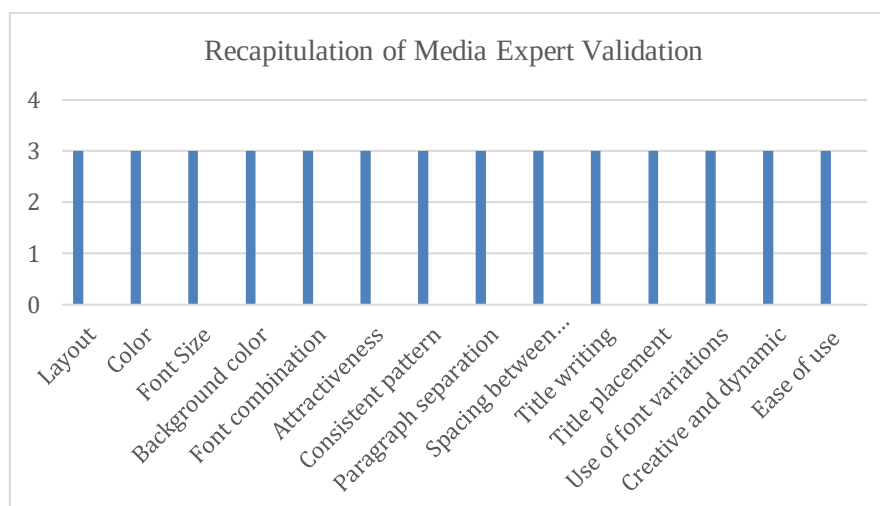


Figure 13. Results of Media Expert Validation on the Javanese Language Unggah - ungguh E-book Media

The diagram in Figure 13 shows the level of media e-book based on various aspects assessed by media experts. According to the analysis results, the layout indicator obtained a value of 3, indicating that the arrangement of the elements in this e-book is satisfactory, but still requires some optimization. This aligns with [Arindiono,& Ramadhani \(2013\)](#), who explains the fundamental principles of layout, as well as the core principles of graphic design, including sequence (order/hierarchy), emphasis, balance, and unity. The color indicator receives a value of 3, indicating that the color selection in this e-book is good but still needs improvement in contrast for more effective readability. As explained by [Nurdini et al \(2018\)](#), the color element holds meaning and a specific position for its observers, especially in product design; this color conveys an impression about the product.

The font size indicator receives a value of 3, indicating that the selected font size is suitable, but still requires optimization to enhance readability and user comfort while reading. The background color indicator gets a value of 3, meaning that the condition is good, but not yet optimal. [Zharandont \(2015\)](#) argues that harmonizing the background color and font color is crucial for creating a good impression and making it easier for users to remember information. The font combination indicator receives a value of 3, indicating that the combination provides good variation, with the note that further improvements are needed to ensure the readability of the presented sentences.

The attractiveness indicator receives a score of 3, indicating that the aspect is quite good but still requires improvement for optimal results. The pattern consistency indicator receives a score of 3, indicating that the presentation pattern in the *unggah-ungguh* e-book media is relatively uniform; however, there are still inconsistencies in some parts, such as the placement and proportion of elements on each page. The paragraph separation indicator receives a score of 3, indicating that the presentation of the paragraph structure in the *Sinuba* e-book media is quite clear; however, there are still some parts that are considered less systematic, which can cause reader ambiguity.

Furthermore, the spacing indicator between elements receives a score of 3, indicating that the spacing between elements, such as titles, paragraphs, images, and other supporting elements, is quite good but can still be optimized. The validator stated that this indicator is quite crucial because it is related to the comfort of e-book users when reading. The title assessment receives a score of 3, which includes the e-book title, activity title, and sub-activities, all of which are quite adequate and in accordance with the contents and the *Sinuba* e-book. The assessment of the title placement indicator, which receives a score of 3, indicates that this aspect falls into the pretty good category but requires improvement. The value obtained is less than optimal due to the layout, which is not proportional, and also the variation in title placement that disrupts the reading flow.

The following assessment of the indicator for font variations receives a score of 3, indicating that the criteria are pretty good. However, there are still areas that need improvement to maximize the use of this *Sinuba* e-book media, specifically the consistency of font use across several pages. The creative and dynamic indicators get a score of 3 from the validator. The creative and dynamic indicators receive a score of 3 from the validator, indicating that this e-book media is quite creative, as stated by Aghni et al (2023), who note that in the current digital era, educators need to be creative in creating media and adapting to technological developments. The last indicator is the assessment of the ease of understanding how to use the e-book, which gets a score of 3. This value shows that the e-book is relatively easy to use. This is because the *Sinuba* e-book is equipped with straightforward navigation, in line with Ihsan (2022) opinion, which suggests that navigation or guidance enables readers to more deeply enjoy the convenience and flexibility offered by digital books.

The improvements based on the validator's suggestions are described below. First, improving the layout of the e-book. Several parts of the e-book require improvement, including the separators between paragraphs and the layout of illustrations and elements. Second, adjusting the illustrations used on the material pages. Previously, the illustrations used as sweeteners in the e-book were considered less appropriate to the material presented. The validator explained that the illustrations in the e-book were not only decorative but also visual representations of the material's content. As explained by Syarif et al (2013), the presence of illustrations makes it easier for readers to understand and also visualize the situation in question.

d. Material Expert Validation Results

The assessment from the material expert validator stated that the presentation of the material was quite good. The material presented was in accordance with the elements and the learning achievements. This is indicated by the percentage of the material expert's assessment of the Javanese language e-book media, which obtained a score of 57 out of a maximum score of 80, corresponding to a percentage of 71.25%. The recapitulation of the expert media validator's assessment is shown in Figure 14.

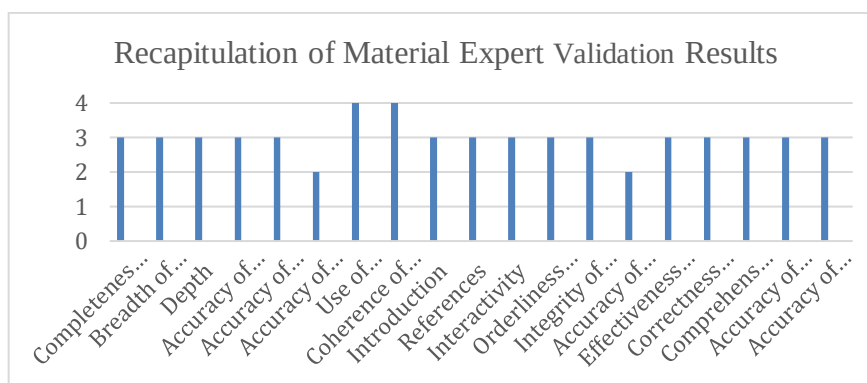


Figure 14. Results of Expert Validation of Material on the Javanese Language Unggah-Ungguh E-book Media

The diagram in Figure 16 shows the level of media e-book *unggah-ungguh basa (sinuba)* based on various aspects assessed by material experts. According to the analysis results, the completeness of the material indicator receives a score of 3 because some material components have not been included in this *Sinuba* e-book media. Furthermore, the breadth of the material indicator receives a score of 3, which indicates that the material presented in the *Sinuba* e-book media is still limited in scope and has not expanded as the target users of this *Sinuba* e-book media have evolved.

The following assessment on the material depth indicator, which got a score of 3, indicates that the material depth presented in this e-book media has not fully met the expected standards. Ramda (2017) argues that material is an important aspect that needs to be considered, as well as the material presented in books or other learning support facilities, because it affects learning outcomes. The next indicator is the accuracy of the concept, which received a score of 3, indicating that the validator found some concepts or information presented in the e-book to be inaccurate. The following assessment on the data and fact accuracy indicator got a score of 3.

In the accuracy indicator, the example receives a score of 2, indicating that the example presented in this e-book media is not quite right, as it falls far short of the standard, since it should be presented in the form of dialogue, not just sentences. The use of examples earns a score of 4, which means it is perfect because the presentation employs language that reflects everyday life, allowing readers or users of this media to more easily understand the content and meaning of the material. The coherence of the concept gets a score of 4 from the validator.

The introductory indicator received a score of 3, indicating that it still needs improvement, particularly in the learning objectives section. This aligns with the explanation by Kustandi et al (2020) that media is essential in learning activities as a means to support the achievement of learning objectives. The assessment of the bibliography indicator received a score of 3, indicating that the references used are generally relevant. As stated by Ridwan et al (2021), the bibliography or references is an essential part because it serves as a reference for authors or researchers in producing their work.

The indicator of participant involvement or interactivity receives a value of 3, indicating that this media can still be improved for interactivity, mainly when used in learning contexts, such as with the Sinuba e-book. This refers to the explanation by Insani et al (2022) that one of the characteristics of interactive learning is the presence of an interactive quiz component, which is guided directly by a teacher during its use. A value of 3 in the aspect of order between learning activities in this e-book media indicates that the sequence and relationship between learning activities are pretty good; however, it can still be improved by creating questions that are sorted according to students' cognitive abilities. Continuing to the indicator of the integrity of meaning in learning activities in the e-book learning media, a value of 3 indicates that the content and messages conveyed in this *Sinuba* e-book are pretty straightforward, but there are still some parts that need to be improved so that the overall meaning is more complete and easier to understand.

The sentence structure accuracy indicator receives a score of 2, indicating that it is still related to the example accuracy indicator in the e-book. Furthermore, a score of 3 on the sentence effectiveness indicator shows that the sentences in this e-book are easy for readers to understand. The next aspect is the standardization of terms, which receives a score of 3, indicating that the terms used in this media are generally well-standardized. This means that most of the terms used are in accordance with the rules of the Javanese and Indonesian languages.

According to the indicator of understanding the information in the *Sinuba* e-book media, it receives a score of 3, indicating that the information presented in this e-book is quite good and easy to understand for users, especially students. The following assessment of the spelling accuracy indicator receives a score of 3, indicating that the spelling in this *Sinuba* book is in accordance with the correct language rules. The last indicator is the accuracy of grammar, which gets a score of 3 because this grammar ensures that the contents of this *Sinuba* e-book are easy to understand, in accordance with language rules, and effective in conveying learning materials, especially in the material on manners.

The percentage value indicates that the Javanese language *unggah-ungguh* e-book media, based on flipbooks, is classified as 'feasible' as a learning medium, following revisions made based on the suggestions and input provided. The improvements made based on the suggestions and input from the validator are described as follows. The first step is to record learning achievements and objectives at the beginning of the e-book. Its function is to make it easier for teachers to evaluate students' learning success in understanding the material and also achieving the expected competencies (Kustandi et al., 2020).

Second, pay attention to the consistency of language variety use in presenting the material. At the beginning of the design, the researcher was less aware of the use of language varieties in the chapter title page and also in the material. Initially, the title of chapter 1 was written "*apa kuwi unggah - ungguh?*", revised to "*menapa unggah - ungguh menika?*". The revision was based on the use of *krama inggil* varieties in the e-book. Furthermore, in chapter 2, it was written "*jinise ragam basa*" revised to "*jinisipun ragam basa*".

Third, changing the appearance of the language variety diagram. The initial design for displaying language variety types used a flow diagram. Furthermore, the diagram was converted into a chart, and the varieties were listed in order. Fourth, the examples presented were dialogues, not sentences. In the initial design, the researcher presented examples in the form of several sentences. Furthermore, it was revised to become a dialogue because, with the example of a dialogue, it provides a clearer context regarding the situation, social relationships, and also the level of language that should be used.

Fifth, adding questions as a tool to measure student understanding. In this *Sinuba* e-book media, there are actually questions that are packaged into Kahoot and Quizizz, which take the form of multiple-choice questions and a few games. However, the validator suggested adding questions in the form of incomplete sentences, which will later be filled with vocabulary that is in accordance with the *unggah-ungguh*. With this model of question, it is hoped that students will truly meet the learning outcomes.

D. Discussion

Based on the validation results, the flipbook-based e-book was considered suitable for use as a learning medium, with an average score of 75% from media experts and 71.25% from material experts. These results support the initial assumption that well-designed digital media can help deliver learning materials more effectively, especially when it comes to cultural values.

From a theoretical perspective, this aligns with constructivist learning theory, which emphasizes that learning becomes more meaningful when it is connected to students' real-life experiences. In this e-book, the *unggah-ungguh* material is presented using examples from daily life and supported with attractive visuals. This makes it easier for students to understand because they can relate the content to situations they are already familiar with. In other words, presenting cultural material through digital media, such as a flipbook, is suitable for today's tech-savvy generation.

These findings also match previous research. [Ramadhina & Pranata \(2022\)](#) found that flipbook-based media can enhance student understanding by engagingly combining text and visuals. [Anindia et al \(2023\)](#) also showed that interactive e-books are effective in teaching moral values to young people in the digital era. This study reinforces those findings by demonstrating that cultural values, such as *unggah-ungguh*, can also be effectively conveyed in this format, particularly in the context of Javanese language learning.

There were no significant discrepancies between the results of this study and those of previous studies. Instead, all findings support each other, showing that flipbooks have strong potential not only for delivering knowledge but also for teaching cultural and character values. Therefore, using flipbooks in education could be an effective way to combine technology with character education in schools.

E. Implication

The implications of this study encompass theoretical, practical, and social domains. Theoretically, the development of the *unggah-ungguh* e-book based on flipbook technology contributes to strengthening the theory of multimedia-based learning that is contextual and oriented toward local wisdom. This media demonstrates that integrating technology with cultural content can enhance the relevance and effectiveness of regional language learning. The e-book can serve as an alternative to traditional interactive learning mediums for teachers and as an engaging tool for independent learning among students. It supports the creation of a more flexible, student-centered learning process. From a social perspective, the use of digital media rooted in local culture plays a role in preserving the Javanese language and instilling values of politeness through an approach that aligns with the character of the digital generation. Furthermore, the findings of this study open opportunities for the development of similar media and serve as a foundation for further research to evaluate the effectiveness of digital media implementation in local content learning.

F. Limitations and Suggestions for Further Research

This study has several limitations that should be taken into consideration. First, the development and implementation of the *unggah-ungguh* e-book, based on flipbook technology, were conducted exclusively for a specific group of students, namely Grade X students at SMAN 1 Gebog Kudus. This limited scope may restrict the generalizability of the findings to other schools or educational contexts. Second, the evaluation of the e-book's effectiveness relied primarily on qualitative observations and expert validation, rather than long-term quantitative measurements of students' learning outcomes. Third, due to time and resource constraints, the study did not explore advanced features such as audio pronunciation or interactive assessments with real-time feedback, which could potentially enhance student engagement.

Future research is recommended to expand the scope of implementation to a broader range of schools and more diverse student populations, allowing the findings to be generalized more broadly. Additionally, follow-up studies may employ experimental or quasi-experimental designs to assess the long-term effectiveness of the e-book in enhancing student learning outcomes. Researchers are also encouraged to develop additional multimedia features such as audio narration, animations, and game-based quizzes to enrich the user experience. Lastly, future development should consider incorporating accessibility features to ensure the media can be used inclusively by students with various needs and learning styles.

G. Conclusion

This study employed the Research and Development (R&D) method to create an interactive e-book titled SINUBA (*Sinau Unggah-Ungguh Basa*), designed to support the learning of Javanese grammar in a more engaging and technology-integrated format. The

resulting e-book successfully achieved the research objectives by offering an accessible, interactive, and contextually relevant digital learning medium for high school students. Key features, including hyperlinks, illustrations, multimedia, practice questions, and an online dictionary, contribute to making SINUBA a practical alternative to conventional learning tools.

The development process demonstrated that integrating cultural content into digital media is both feasible and valuable in the context of local language instruction. As a digital learning innovation, SINUBA offers the potential to enhance the quality of Javanese language education, aligning with students' learning preferences and current technological advancements. Future development is encouraged to expand content coverage, enrich technical features, and explore adaptability for various educational levels.

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