

## INTERACTIVE MATHEMATICS E-TEXTBOOK: INNOVATION IN LEARNING INTEGER OPERATIONS WITH THE WISE APPROACH

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### Article History

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### Abstrak

Pelajaran matematika masih dipandang sebagai suatu labirin yang menakutkan sehingga menjadi momok bagi banyak siswa SMP. Penelitian ini bertujuan untuk mengembangkan, memvalidasi, dan mengimplementasikan e-Textbook Matematika Interaktif yang dirancang untuk meningkatkan keterlibatan siswa dalam pembelajaran matematika, dengan fokus khusus pada operasi bilangan untuk siswa kelas VII. E-Textbook ini dirancang berdasarkan Model WISE Habits yang inovatif, dengan empat tahap utama: *Wondering, Investigating, Synthesizing, dan Expressing*. Tahapan-tahapan ini secara strategis diintegrasikan untuk menciptakan pengalaman belajar berbasis inkuiri yang interaktif dan menarik, yang mendorong partisipasi aktif dan pemahaman mendalam konsep matematika. Penelitian ini menggunakan metodologi Penelitian dan Pengembangan yang komprehensif, memanfaatkan model ADDIE untuk secara sistematis mengembangkan dan menyempurnakan e-Textbook. Validasi e-Textbook melibatkan panel ahli yang berkualitas tinggi dalam bidang matematika, desain pembelajaran, dan media pendidikan untuk menilai akurasi konten, efektivitas pedagogis, dan kualitas teknis e-Textbook. Hasil penelitian ini menunjukkan bahwa e-Textbook matematika interaktif yang dikembangkan merupakan alat pembelajaran yang valid dan efektif, dan dapat meningkatkan keterlibatan siswa dalam belajar.

**Kata Kunci:** E-Textbook Matematika Interaktif; Model WISE Habits; Operasi Bilangan; Keterlibatan Siswa.

### Abstract

*For countless junior high school students, the world of mathematics remains a daunting labyrinth, with many struggling to navigate its complex pathways. This research aims to develop, validate, and implement an Interactive Mathematics e-Textbook designed to enhance student engagement in mathematics learning, with a specific focus on number operations for seventh-grade students. The e-textbook is built upon the innovative WISE Habits Model, which incorporates four key stages: Wondering, Investigating, Synthesizing, and Expressing. These stages are strategically integrated to create an interactive and engaging inquiry-based learning experience that promotes active participation and deep understanding of mathematical concepts. The study employs a comprehensive Research and Development methodology, utilizing the ADDIE model to systematically develop and refine the e-textbook. The validation of the e-textbook involves a panel of highly qualified experts in mathematics, instructional design, and educational media to rigorously assess the e-textbook's content accuracy, pedagogical effectiveness, and technical quality, providing valuable feedback for refinement. The results of this study indicate that the developed interactive mathematics e-textbook is a highly valid and effective instructional tool to enhance student engagement in learning.*

**Keyword:** *Interactive Mathematics e-Textbook; WISE Habits Model; Number Operations; Student Engagement*

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## INTRODUCTION

The level of literacy and mathematical numeracy of students in Indonesia according to the Program for International Student Assessment (PISA) report still shows a worrying situation. The results of PISA 2022 show that although Indonesia's literacy learning outcomes ranking has increased by 6 positions compared to PISA 2018, Indonesia is still ranked 68th out of 81 participating countries with a score for mathematics of 379, science of 398, and reading of 371 points (Ministry of Education and Culture, 2023). The results of the PISA Collaborative Problem Solving Framework (OECD, 2017), support by stating that over the past 20 years the literacy scores of Indonesian children have been low and have not experienced significant improvement. The literacy and numeracy abilities of Indonesian students are still below the average of students from other member countries of the Organization for Economic Cooperation and Development (OECD).

To overcome this, Indonesian education requires a fundamental change in learning methods that can actively involve (engage) students in learning activities. Student engagement in question is how actively and deeply students participate in the learning process, interact with learning resources, collaborate with peers, and even engage with teachers that can be observed through some affective, cognitive, and psychomotor indicators in a continuity. The more students are involved and empowered in their learning space, the more likely they are to channel that energy back into their learning, which can encourage their further involvement in learning (Bond et al., 2020).

Electronic textbooks or in this study called e-textbooks are a form of innovation in new teaching materials that are different from e-books. E-textbooks are designed as digital flipbooks that combine multimedia elements such as text, audio, video, games, and other interactive content and use various rapidly developing digital learning platforms to the maximum. E-textbooks direct students to discover their learning independently or collaborate in groups through specially designed inquiry activities. Its digital form of interactive flipbooks is the main key advantage and attraction that makes it very attractive to the younger generation (An Naufal, 2022; Hairunnisa, 2023). Users of this e-textbook, namely students from Generation Z (born 1995-2012) and Generation Alpha (born 2013 and above) naturally have a strong bond with digitalization (digital natives) who are fully users of advances in technological devices, so this interactive feature will be very interesting and effective for them (Holman, 2021).

The recognition of the importance of transformation in mathematics education drives recent innovations in this field that are becoming increasingly crucial and inevitable. Traditional learning methods often fail to stimulate the interest and motivation of modern students. Integration of technology, such as interactive e-textbooks, has the potential to revolutionize the way mathematics is taught and learned. Internet technology presents new opportunities to develop engaging and interactive e-textbooks that can teach students to master complex mathematical concepts while maintaining their motivation to learn, thus having a significant positive impact on increasing students' interest in learning mathematics and their mathematical abilities (Bright et al., 2024).

However, the development and implementation of effective learning media require careful consideration of pedagogical principles and student needs. This study is significant because it fills a significant gap in mathematics education. By developing and validating an interactive e-textbook aligned with the WISE Habits Model, this study contributes to the expansion of knowledge about effective learning strategies. The findings of this study inform the design and implementation of innovative educational technologies, which can be replicated to improve student learning outcomes.

The contemporary field of education emphasizes the importance of students becoming independent individuals, able to think critically, and able to adapt and navigate the vast world of information. Teacher development in the Society 5.0 era also focuses on the development of digital literacy, the ability to utilize technologies such as AI and IoT in learning, as well as critical and creative thinking skills, so that teachers can integrate technology effectively, personalize learning, and guide students to develop 21st century skills (Sabariah, 2024; Saputra et al., 2023). Learning frameworks that foster questioning skills and empower students to actively construct knowledge are increasingly valued, no longer just cognitive is prioritized. This study introduces the Wondering-Investigating-Synthesizing-Expressing (WISE) learning framework as an approach that fosters 4C (Critical Thinking, Creativity, Communication, and Collaboration), and offers a structure to encourage student exploration in acquiring knowledge (Fatirul et al., 2022).

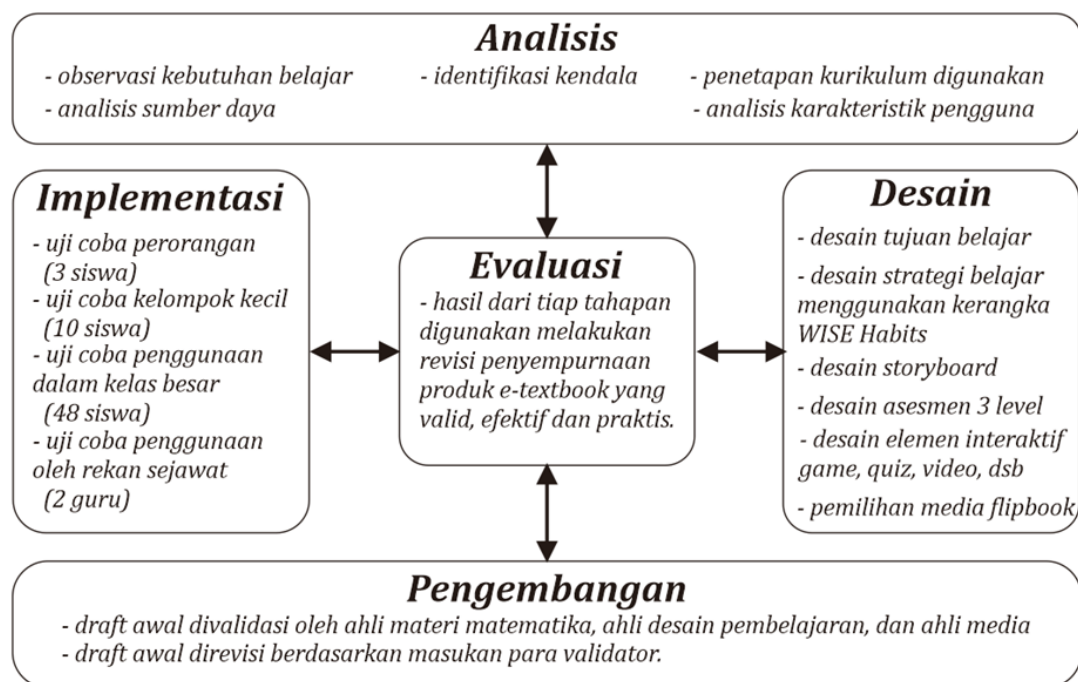
The inquiry-based WISE learning framework model was originally initiated by librarians Mary Boyd Ratzler and Paige Jaeger of the Washington-Saratoga-Warren-Hamilton-Essex (WSWHE) Board of Cooperatives (BOCES) and the New York State Capitol BOCES and was further refined by Bridget Crossman. The WISE model is a learning model that involves students using inquiry skills to build their learning. This learning framework is in line with several well-known educational theories such as constructivism theory, supported by Piaget (1970) and Vygotsky (1978), stating that knowledge is actively constructed through individual and social experiences. Inquiry-based learning (IBL), initiated by Dewey (1938), emphasizes exploration in learning that encourages students to develop problem-solving skills. In addition, the learning framework is in line with the principles of critical thinking, encouraging students to analyze information, identify biases, and form appropriate and relevant judgments. (Priyatni et al., 2021; Fatirul, et al, 2022).

Unlike traditional methods where knowledge is passively absorbed, this model empowers students to embark on an active inquiry adventure, fostering deeper understanding and a lifelong love of learning (Ratzler & Jaeger, 2014; Crossman, 2019). WISE Habits is not a learning method, but rather refers to a learning framework that aims to create a habit of asking questions that stem from strong curiosity (wondering), searching in depth for correlations between various information presented (investigating), so that a logical conclusion can be found (synthesizing), which can be communicated to others (expressing) (Fatirul et al., 2022).

This study aims to improve the mathematics skills of Indonesian students through the development and implementation of an innovative interactive mathematics e-textbook. By adopting the WISE Habits Model, this study seeks to equip students with critical thinking skills, encourage active exploration, and increase their involvement in the learning process. Specifically, this study will: (1) identify the obstacles faced by seventh-grade junior high school students in understanding mathematics concepts; (2) design and develop an interactive e-textbook that is tailored to the curriculum and students' needs; (3) test the effectiveness and practicality of the e-textbook in improving students' mathematics learning achievement; (4) validate the WISE Habits Model as an effective learning framework in the context of mathematics learning; and (5) contribute to the development of better learning practices in mathematics education in Indonesia.

## **METHOD**

The research conducted in this thesis is a research & product development that aims to produce a product and test its effectiveness using the ADDIE development model. The development of this interactive mathematics e-textbook is intended to increase the involvement of grade VII students of SMP Cita Hati, Surabaya in learning mathematics, especially on the topic of number operations.



**Figure 1. ADDIE Development Method**

This ADDIE development model provides a systematic approach to producing a development product that has a crucial role in ensuring an output that is in accordance with the needs of the students who use it and is carried out based on five stages, including analysis, design, development, implementation, and evaluation. (Branch, 2009).

In this development research, the sample respondents were students of grade VII of Cita Hati Middle School, Surabaya. Cita Hati School is a cooperative education unit (SPK) school in Surabaya that uses the Middle Years Program curriculum from the International Baccalaureate where 80% of classroom learning is conducted using English as the language of instruction. The selection of respondents was carried out to support the researcher's duties as a grade VII mathematics educator at the school. The respondents were divided into three groups, namely low, middle, and high cognitive groups based on observations carried out using the assessment of the performance assessment of the mathematics learning process. The involvement of all cognitive levels is intended so that the resulting e-textbook product can meet the needs of all students from various cognitive levels.

The research instrument used is a non-test method based on a response questionnaire containing statements related to interactive mathematics e-textbooks with a Likert scale of 1 to 5. The statements in the questionnaire are intended to assess the validity, effectiveness, and practicality of the e-textbook when used. The intended validity refers to how relevant the mathematics content in the e-textbook is to the curriculum and the level of student's cognitive development. The effectiveness of the e-textbook relates to how effectively the e-textbook helps students with different levels of learning readiness achieve the learning objectives set. Meanwhile, the practicality of an e-textbook shows how easy this product is to use in the learning process to increase their motivation in learning mathematics.

In this study, the data used were obtained through two main stages consisting of the validation stage and the trial stage. The validation stage was carried out after the initial draft of the e-textbook was designed, then validation was carried out by mathematics material experts from Sekolah Cita Hati, as well as learning design experts and media experts from Universitas PGRI

Adi Buana, Surabaya. Each expert validator was given a link to the interactive mathematics e-textbook online. The nature of this e-textbook as an electronic teaching material based on digital flipbooks that supports interactivity requires an internet connection to access it. Each expert validator was equipped with an instrument in the form of statements in a questionnaire that would be assessed using a Likert scale from 1 to 5. The validation results became the basis for revising the e-textbook before being tested.

The validated interactive mathematics e-textbook was tested on grade VII students of SMP Cita Hati. In the individual trial stage, mentoring was carried out on 3 students representing low, medium, and high cognitive levels. They used the interactive mathematics e-textbook personally which was accessed through their respective devices while being accompanied by the researcher. The second trial stage was carried out on 10 students representing low, medium, and high cognitive levels. These ten students explored the e-textbook personally on their respective devices without much guidance from the teacher. This was done to see to what extent this e-textbook could also be used personally without much supervision. The third trial stage was carried out by involving two teachers guiding activities using the mathematics e-textbook. Each class consisted of 24 students. WISE activities were widely explored in this trial. Students collaborated in groups and followed activities in the e-textbook. Discussions took place, the use of the AI chatbot available on the e-textbook page, even doing practice questions and various other activities. Based on this experience, respondents gave their assessment of the effectiveness and practicality of e-textbooks in their respective views.

All the validity data of the e-textbook interactive mathematics that has been collected through validator questionnaires, student response questionnaires, and teacher response questionnaires will be calculated to obtain an average value (mean) in the form of a percentage based on the assessed category. Each average value in each criterion component is changed into a qualitative value based on the provisions of the ideal assessment category (Sudijono, 2012), which uses the ideal average value ( $M_i$ ) and the ideal standard deviation value ( $SB_i$ ) obtained using the following formulas:

$$M_i = \frac{1}{2} x (\text{nilai maksimal ideal} + \text{nilai minimal ideal})$$

$$SB_i = \frac{1}{6} x (\text{nilai maksimal ideal} - \text{nilai minimal ideal})$$

Information:

Nilai maksimal ideal =  $\Sigma$  butir kriteria x nilai tertinggi

Nilai minimal ideal =  $\Sigma$  butir kriteria x nilai terendah

The range of values in each interval is used to interpret the suitability of teaching materials using table 1.

**Tabel 1. Ideal Assessment Category Criteria (Sudijono, 2012)**

No	Score Range (i) quantitative	Criteria	Description
1	$\bar{X} > (M_i + 1.5 SB_i)$	Completely Suitable	Usable without revision
2	$(M_i + 0.5 SB_i) < \bar{X} \leq (M_i + 1.5 SB_i)$	Suitable	Usable after revision
3	$(M_i - 0.5 SB_i) < \bar{X} \leq (M_i + 0.5 SB_i)$	Moderately Unsuitable	Usable after revision and revalidation
4	$(M_i - 1.5 SB_i) < \bar{X} \leq (M_i - 0.5 SB_i)$	Unsuitable	Unusable
5	$\bar{X} \leq (M_i - 1.5 SB_i)$	Highly Unusable	Unusable

## RESULT

Research and product development using the ADDIE model resulted in an interactive mathematics e-textbook based on digital flipbooks. The WISE framework is a novelty and strength used in this development research. The WISE framework has not been widely used in schools in Indonesia, and no textbook uses it as a means to increase student engagement in learning. In this interactive mathematics e-textbook, the use of WISE Habits colors each chapter and becomes the main

strength in leading students to ask questions (inquiry) and find the knowledge they need themselves.

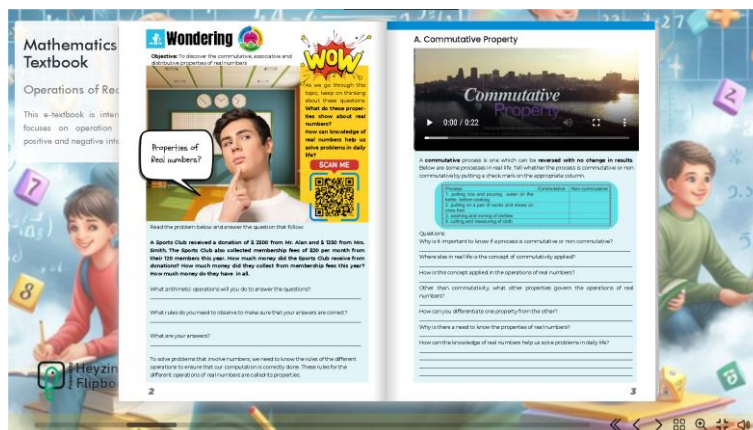
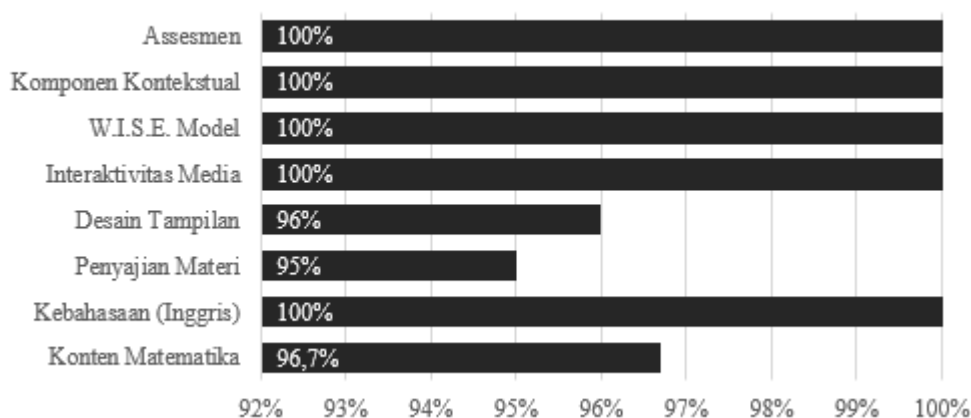


Figure 2. E-Textbook looking as digital flipbook

After going through a series of validation tests and field trials, the data obtained were analyzed using the analysis techniques above. The quantitative data obtained were tabulated to be analyzed based on each aspect, the validation aspect of the e-textbook, the effectiveness of use in achieving learning objectives, and the practicality of use that facilitates users directly. The final average value is used as a conclusion regarding the level of e-textbook eligibility for use and even for further development.

Grafik 1 Aspek Penilaian Ahli Matematika



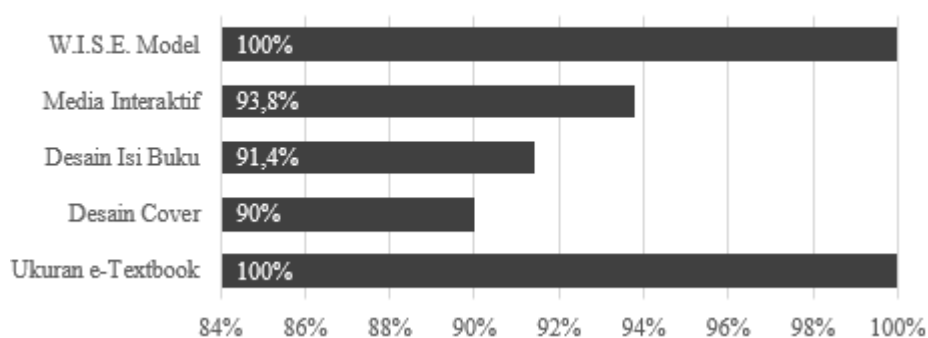
Graph 1. Aspects of Mathematician Assessment

Based on the results of the percentage of scores extracted from the mathematics expert questionnaire, the results obtained are as shown in Graph 1, as follows: The aspect of the feasibility of the mathematical content gets a score of 96.7%. The linguistic aspect (English) gets a score of 100%. The aspect of material presentation gets a score of 95%. The aspect of display design gets a score of 96%. The aspect of media interactivity gets a score of 100%. The aspect of the W.I.S.E. model gets a score of 100%. The aspect of contextual components gets a score of 100%. The aspect of assessment gets a score of 100%.

So overall the average score covering all aspects is 4.93 on a scale of 5 and shows a percentage of mathematics validation scores of 98.5% included in the category of 'very feasible' and valid to be continued. Image/graphic captions in one row (eg Figure 2) are placed in the

center, while multi-line captions must be left aligned. Image/graphic captions with image/graphic numbers must be placed after the related image/graphic.

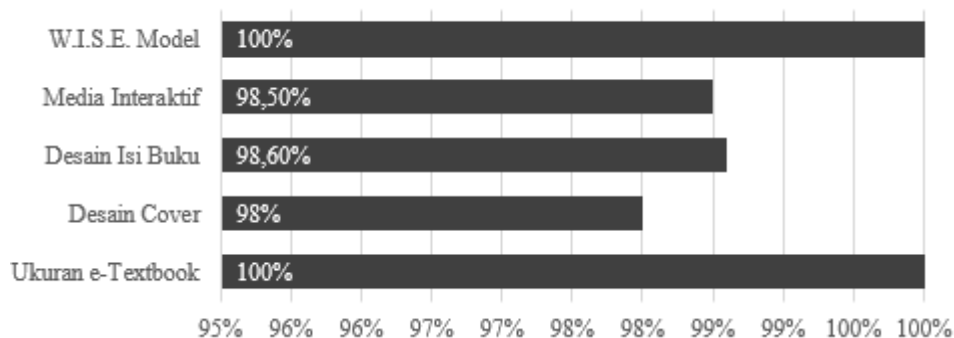
**Grafik 2 Aspek Penilaian Ahli Desain**



**Graph 2. Expert Design Assessment Aspects**

The results of the design expert validation are shown in Graph 2. The e-textbook size aspect scored 100%. The e-textbook cover design aspect scored 90%. The e-textbook content design aspect scored 91.4%. The interactivity media aspect scored 93.8%. The W.I.S.E. model aspect scored 100. So overall the average score covering all aspects is 4.76 on a scale of 5 and shows the percentage of the e-textbook design validation score of 93.02% is included in the category of 'very feasible' and valid to be continued.

**Grafik 3 Aspek Penilaian Ahli Media**



**Graph 3. Aspects of Media Expert Assessment**

Media experts also conducted the validation process and produced an assessment as shown in Graph 3. The e-textbook size aspect scored 100%. The e-textbook cover design aspect scored 98%. The e-textbook content design aspect scored 98.6%. The interactivity media aspect scored 98.5%. The W.I.S.E. model aspect scored 100%. So overall the average score covering all aspects is 4.95 on a scale of 5 and shows the percentage of the e-textbook design validation score of 98.6% is included in the category of 'very feasible' and valid to be continued.

**Table 2. Total Results of E-Textbook Validity**

No	Expert Validator	Score Obtained	Maximum Score	Percentage
1	Mathematical Content	202	205	98,5%
2	Learning design	200	215	93%
3	Learning media	212	215	98,6%
<b>Total Validity of e-Textbook</b>		<b>614</b>	<b>635</b>	<b>96,7%</b>

According to the analysis recorded in Table 2 above, the expert validators gave a total value of 614 out of a maximum score of 635, thus giving a validity percentage of this e-textbook of 96.7%. This result is included in the Very Good category, which means that this interactive

mathematics e-textbook is valid or suitable for use because it has been tested both in terms of mathematical content, learning design and appearance, and even the media used.

**Table 3. Total Results of E-Textbook Effectiveness**

No	User Validator	Score Obtained	Maximum Score	Percentage
1	Individual	217	225	96,4%
2	Small group	639	750	85,2%
3	Large group	2944	3600	81,8%
4	Peer	160	170	94,1%
<b>Total Effectiveness of e-Textbook</b>		<b>3960</b>	<b>4745</b>	<b>83,5%</b>

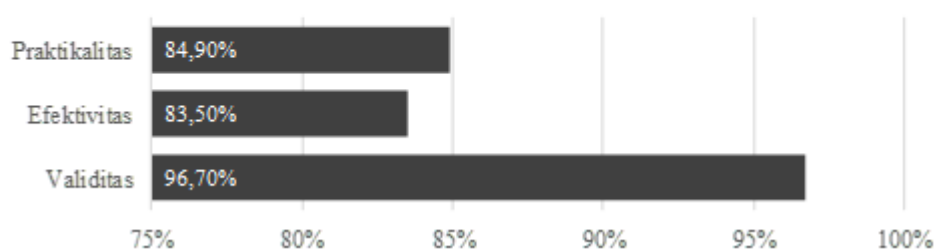
The effectiveness of the e-textbook is intended as how far the use of this e-textbook can help students and teachers in understanding the concept of learning arithmetic operations presented in this e-textbook. Analysis of student and teacher opinions is compiled and processed into data as recorded in Table 3 above. Users of this e-textbook gave a total score of 3960 from a maximum score of 4745, thus giving a percentage of e-textbook effectiveness of 83.5%. This result is included in the Very Good category, thus indicating that students and mathematics teachers get benefits and convenience in using this e-textbook effectively in learning.

**Table 4. Total Results of E-Textbook Practicality**

No	User Validator	Score Obtained	Maximum Score	Percentage
1	Individual	117	120	97,5%
2	Small group	344	400	86%
3	Large group	1605	1920	83,6%
4	Peer	74	80	92,5%
<b>Total Practicality of e-Textbook</b>		<b>2140</b>	<b>2520</b>	<b>84,9%</b>

The practicality of using e-textbooks is measured through a selection of statements in a questionnaire. Users provide an assessment of the practicality of this book and the results are as recorded in Table 4 above. From a total maximum score of 2520, the users consisting of students and teachers gave a total score of 2140, thus obtaining a percentage of the practicality of the mathematics e-textbook of 84.9%.

**Grafik 4 Persentase Validitas Efektivitas, dan Praktikalitas E-Textbook Matematika Interaktif**



**Graph 4. Percentage of Validity, Effectiveness, and Practicality of Interactive Mathematics E-Textbook**

All assessments of the validation, effectiveness and practicality of the interactive mathematics e-textbook that have been carried out can be summarized as follows. The validity of the e-textbook is at 96.7%. The effectiveness of the e-textbook is at 83.5%. While the practicality of this interactive mathematics e-textbook is at 84.9%.

## DISCUSSION

The 21st-century skills are in great demand by students in today's technological age. Fatirul, et al. (2022) stated that the ability to solve problems creatively with a structured mindset, as well as the

ability to collaborate and communicate effectively are in great demand in the world of work so they need to be honed since school. WISE, which is inquiry-based with four stages, helps students have these four skills.

The analysis stage includes a series of observations and interviews to identify problems and student needs as well as expected learning objectives. The results of the analysis found that students who are Alpha generation have high hyperconnectivity in the use of technology (Holman, 2021). In mathematics, there are still many students who are weak in calculating with integers and the order of integer operations which is one of the core of basic mathematics learning, especially when performing operations using negative integers (Lin, 2022; Michael & Ritzelda, 2022).

Based on the analysis, the product design stage that was developed focused on the material on integer operations, especially negative numbers. The e-textbook product was developed based on digital technology containing all the completeness of the textbook with a touch of interactivity in the form of learning videos, games that support each chapter, both non-digital games and digital games, and video songs to support learning. The e-textbook digital platform uses the Heyzine Flipbook Maker online application that supports interactivity. Learning in the e-textbook is designed based on the WISE model, which empowers students to absorb learning through inquiry activities that encourage student involvement in conducting active investigations based on strong curiosity. The e-textbook is set to use English as the language of instruction to support activities in schools that also use the same language of instruction.

The screenshot shows a page from an e-textbook. On the left, there is a 'Wondering' section with a cityscape image and a 'WOW' callout box. The main content is a math problem:  $8 \div 2 (2 + 2) = ?$ . To the right, there is a 'Worked Example' section showing a calculation. At the bottom, there is a QR code and a 'P.E.M.D.A.S.' acronym for the order of operations.

Figure 3. Page in the Wondering Phase

The use of WISE activities is very interesting, for example in chapter five. The Wondering phase encourages students to ask questions and fosters curiosity and ownership of their learning. On the fifth chapter e-textbook page as seen in Figure 3, a math question is shown, namely  $8 \div 2 (2 + 2) = ?$  which can have different answers when worked on with different methods and sequences. Students are presented with the question "Which way do you think is right? Why do we need to make a convention on this?" This question will arouse students' interest in discussing and commenting on other students' answers guided by the teacher who builds a safe atmosphere for different opinions. The teacher introduces PEMDAS (Parentheses, Exponents, Multiplication-Division, Addition-Subtraction) as standard rules. Activities in the Wondering phase encourage students to use their critical thinking skills so that students can make decisions and validate their answers on the right basis.

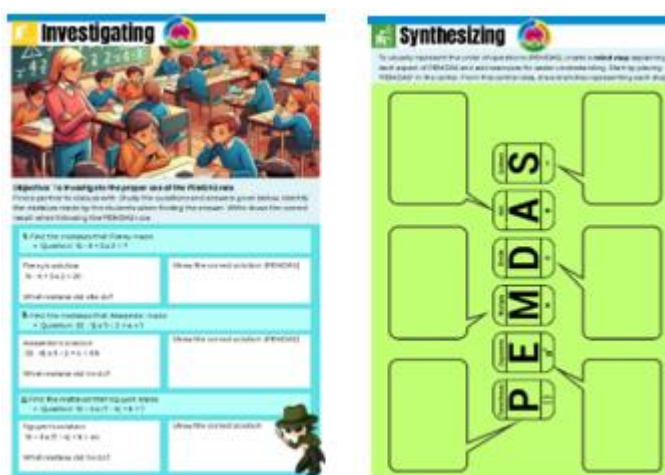


Figure 4. Investigating and Synthesizing Phase

In the Investigating phase, students are given several problems that are wrong in implementing PEMDAS. Students are asked to work in groups to investigate, analyze, and find the mistakes made in the example and provide suggestions for a more appropriate way to calculate the problem in question. By conducting this investigation, students are expected to be able to strengthen the concept of the order of operations. This collaborative aspect builds students' social skills to engage in discussions and provide input.

The Synthesizing phase requires them to connect new knowledge to prior understanding, which deepens their cognitive engagement. On the Synthesizing page (Figure 4) students are asked to summarize all of their findings into a concept map. This reflective practice encourages student engagement in considering the implications of their findings. Each student will create their own concept map. Concept maps from the entire class can be displayed on the board and a gallery walk can be conducted so that each student can learn different ideas from other students as well.

The Expressing stage is the final stage that involves conveying findings and insights. Students share their conclusions through various formats such as presentations, reports, or creative projects. Teachers encourage students to present their work to peers or a wider audience. For example, this time students are given an example of a rap song with the theme Order of Operation. The song video can be listened to using the existing QR code. The song is expected to stimulate students' creativity. Then the students are challenged to produce a song composition with the same theme in groups. They have the opportunity to generate ideas, write interesting lyrics, and even compose their own melodies that not only help them remember the order of operations but also show off their artistic abilities.

A previous literature study conducted by Priyatni et al. (2021) showed that learning using the WISE model can be used to help students develop 4C skills (Critical Thinking, Creativity, Collaboration, and Communication) so that they can improve literacy and numeracy competencies. This is in line with the development of interactive mathematics e-textbooks so that students become more competent in mathematics and use it in their daily lives. This study supports the research of Fatirul et al., (2021) who used the WISE model among students and produced a conclusion that is in line with that WISE can be applied to various groups of students to improve their 21st century skills.



Figure 5. Expressing Phase

The impact of the use of technology in teaching and learning mathematics on students' mathematics achievement is also mediated by students' interest in mathematics. Research by Bright et al., (2024) shows that the impact of technology on mathematics achievement and the impact of mathematics interest on mathematics achievement are positive and significant. This is in line with development research by Nafi'a et al. (2020) which found that the use of interactive multimedia as a learning medium is very productive, because it utilizes various multimedia elements such as images, writing, sound, animation, and video, to create an interactive and interesting learning experience. Students can control and interact with this media independently, so that the learning process becomes more personal and not boring. Mathematics which is usually boring becomes fun if it is packaged creatively and interactively. The use of interactive multimedia technology is not only for mathematics learning. Kuswidayani et al., (2021) conducted development research for social studies material and found results that are in line with this study, namely that interactive multimedia development products are useful for increasing student interest when learning. This proves that the use of technology and multimedia is very helpful for all levels of students.

Digital-based flipbooks as one of the multimedia technologies bring practicality to learning. Hairunnisa, (2023) in the development of mathematics teaching materials found that the use of digital flipbooks is able to contextualize learning into students' lives and train students' mathematical abilities. Ginting (2022) also found that the use of digital flipbooks makes it very easy for students to get convenience in learning when using electronic modules.

## CONCLUSION

The Interactive Mathematics E-textbook produced through research and development of the ADDIE model has been validated very well and produces interesting teaching materials that can increase student involvement to be active in learning and meet student needs, especially for materials that are not boring with interconnectivity involving technology. This can be concluded from the results of expert validation and direct use in the field by grade VII students at SMP Cita Hati. The WISE Habits model as one of the inquiry strengths in this book has been tested and received good scores so it can be concluded that this WISE model is very good to be developed as a means of building student involvement in learning. With such good results, the enthusiasm of students and teachers can be seen when exploring and using this e-textbook both personally and in groups. This interactive mathematics e-textbook has contributed to the development of learning

practices at Cita Hati School but can also be developed for use in other schools anywhere in Indonesia and even the world.

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