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Implementation of Design Thinking in Media Development "Kaca" (Kartu Baca)

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A B S T R A C T

One of the skills that must be achieved in low-grade elementary school students is reading. In reality, in learning there are still many low-grade students who are not able to read well. Low-grade elementary school students still need guidance from teachers in learning reading skills. Beginning reading skills are not just seeing a bunch of letters arranged into words, groups of words, sentences, paragraphs and discourse alone, but reading skills are activities to understand and interpret symbols, symbols, signs, writing that has meaning so that readers can understand the message conveyed. The purpose of this research is to design Reading Cards as a game-based learning media by applying the concept of Boardgames. In the process of developing learning media, the author uses the design thinking innovation method. Game-based learning media can utilize technology as an interactive and interesting learning media. The design of learning media KACA (Kartu Baca) is considered appropriate to improve the reading ability of students as users.

A R T I C L E I N F O

1. INTRODUCTION

Reading is one of the four Indonesian language skills, Indonesian language skills include reading, writing, listening and speaking. The four skills have a relationship between one another and have their respective functions. One of the reading skills is beginning reading skills. Users who are in the low grade phase are experiencing the learning process at the beginning reading stage, where users still need guidance from the teacher in learning these skills. In reality, in learning there are still many users who are not able to read well. Meanwhile, if one skill has not been mastered, then students will not be able to learn other skills. For example, when users are not able to recognize letters, they will not be able to write and when users are not able to read, they will not be able to understand the reading.

Beginning reading skills are not just seeing a bunch of letters arranged into words, groups of words, sentences, paragraphs and discourse alone, but reading skills are activities to understand and interpret symbols, symbols, signs, writings that have meaning so that readers can understand the messages conveyed (Ampuni, 2015). The steps of beginning reading include: 1) students recognize the elements that make up sentences, 2) recognize the elements of words, 3) recognize the elements of letters, 4) string letters into syllables, and 5) string syllables into words. For example: "Ani reads a book", in this sentence students understand the structure of the sentence as a whole, then what words are used, and what syllables/letters make up the word? So that the sentence has meaning and can be understood by the reader. The purpose of beginning reading is to provide skills for students to convert a series of letters into meaningful sounds, and become a technique in smoothing children's reading (Madu & Jediut, 2022). Therefore, improving early reading skills requires concrete media so that users can have a direct reading learning experience.

Based on Jean Piaget's theory that users (learners) are at the concrete operational stage. At this stage, children are mature enough to use logical thinking or operations, but only for physical objects. Users who are in the low-grade phase have the characteristics of enjoying playing, moving and doing things directly. According to Makhrus (2015), the characteristics of elementary school students include enjoying playing, enjoying moving, enjoying working in groups, and enjoying feeling or doing directly. So it is suitable to use game-based learning media. According to Winatha & Setiawan (2020) game base learning is a type of game-based learning media, which utilizes technology as an interactive learning media. Therefore, the design of learning media KACA (Kartu Baca) by applying the concept of game base learning (Boardgame) is considered appropriate to improve users' reading skills.

2. METHODS

This research uses the Design Thinking innovation method by David Kelley, founder of IDEO and Stanford School of Design Thinking (d.school). David Kelley divides the design thinking process into 5 phases, namely building empathy, formulating defines, creating ideate, developing prototypes and testing prototypes (test/evaluate) (Camacho, M, 2016) (figure 2). The creation of a design/innovation requires several characteristics that must be considered for designers, such as emphasize, define, ideate, prototype, and test.

Figure 1. Design Thinking Test Phase (Camacho, M, 2016).

2.1. Building Empathy

This stage is the core process of the problems that occur and must be resolved. At this stage, what is done is to try to understand the problems that occur. The techniques used to understand the problem are learning observations and interviews. To build empathy, observations and interviews are conducted directly with the target user. This research uses interviews with IDI (In-depth interview) techniques. According to Rutledge et al (2020) In-depth interview (IDI) is one of the qualitative research methods that only requires a small sample tailored to the needs. IDI is conducted personally, meaning that the interview is conducted with the subject one by one so that the subject is more comfortable and free to express his personal opinion. Therefore, the IDI method will result in a deep understanding of the subject and valuable findings can surface. IDI has four stages: sample selection, question formulation, IDI implementation, and data processing and analysis. The in-depth interview process was conducted at SDN 122 Cijawura to several people who were the target users. The interview process was conducted personally. The following are the stages of the in depth interview conducted:

1. Sample Selection

Sample selection was conducted using the Extremes and Lenses strategy. Extremes and Lenses is a purposive sampling strategy. This strategy is based on the assumption that the majority of the population has similar needs (mainstream), but the outliers of the population (extremes) have the most different needs. If we interview subjects from the population, and they are found to have similar patterns of needs, it can be assumed that these needs represent the needs of the entire population.

2. Question Formulation

The question formulation technique uses the diverge-converge technique. In the diverge technique, all the questions that will be asked to learners are outlined to find out more about the cause of the problem and understand the learners and know what the learners' needs are. In the converge technique, the questions were grouped based on similar themes and organized the questions based on the order of the IDI.

3. Conducting In-depth Interviews

In-depth interviews were conducted with five users who were considered to be a population of extremes. The IDI process was carried out using questions that had been previously compiled. These questions served as triggering questions to dig deeper into the target users. Some follow-up questions were not listed because they were follow-up

questions from the answers or responses of the target during the interview. During the interview, it is important to be sensitive and observative of the user's emotional responses.

4. Data Processing and Analysis

Data processing and analysis applied the divergent - convergent principle. The divergent phase is used when collecting various information obtained from the IDI stage. The convergent principle was used when organizing and analyzing the data. When organizing the findings, the strategy of organizing the findings based on themes was used. In this strategy, the interview results are made into finding points, then without looking again at the questions or interview subjects, the points are grouped based on the content of the findings that are more or less similar, then given a theme that represents each group of findings. The result of the empathy stage is a deep understanding of the problems experienced by users.

2.2 Formulating Objectives (Define)

Define is a stage of data collection that is analyzed and synthesized so as to get the core problems that occur to users. The define phase aims to formulate the design objectives (Design Challenge). This phase may be the most challenging part of the Design Thinking cycle, because in defining the problem, a designer needs to synthesize the findings from the Empathize phase. Synthesis means connecting pieces of information in a creative way so as to produce a coherent whole/big picture (Dam & Siang, 2020). In determining the formulation of design objectives, author use a Design Thinking technique called Point of View, which combines an understanding of the user, his needs, and insights/findings from the Empathize phase in one actionable sentence.

2.3 Creating Solutions (Ideate)

This stage is a process that produces a solution where the designer does deep thinking. Ideate generates an idea as the basis for the prototype that will be made. The Ideate phase in Design Thinking is about how we explore various radical alternative ideas that can be a solution to a problem/need. The strategy used in this phase is the Silent Brainstorming strategy. There are two stages in creating ideas including the divergent and convergent stages of ideation have different approaches because the mindset used is different. During the divergent stage, there will be more honing of right brain abilities related to imagination, holistic thinking, intuition, art, rhythm, nonverbal cues, visualization of feelings, and fantasizing. In contrast to the convergent stage, at this stage it will hone more left-brain abilities related to the logical side, sequence, linear thinking, mathematics, facts, thinking in words (figure 2).
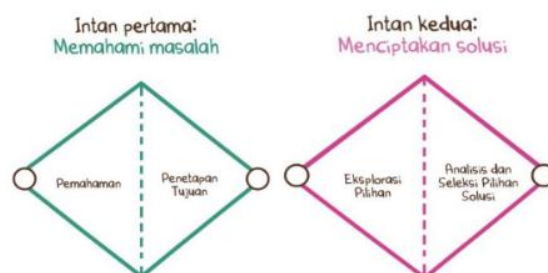
Figure 2. Ideation stage with divergent & convergent concepts

The divergent stage is done through Silent Brainstorm by preparing sticky notes and stationery. Implementation steps:

1. Each group holds a stationery and a stack of sticky notes. Within a predetermined time (2-3 minutes) each person wrote or drew as many solution ideas as possible from the Design Challenge.

2. While writing the ideas, each group member should not discuss or look at the answers of their teammates.

3. When the time is over, the group reads out all their ideas in turn.

4. The activity can be conducted in two sessions. In the second session, group members are given additional time to express new ideas that have not been written or drawn in the first session, or to write down new ideas that arise because they are inspired by the first session.

5. Ideas can be written down, but drawings or visuals are preferable.

2.4 Prototyping and Testing

A prototype is an initial design for making a product in the form of a picture or chart. The purpose of a prototype is to find the weaknesses and strengths of a product being designed. Prototype development is an integral part of Design Thinking and user-centered design, because prototypes allow us to test ideas and improve them in a short time (Dam & Siang, 2021). There are different ways to create a prototype, and there are different types of prototypes to choose from according to testing needs. The choice of prototype type is usually based on the design stage. Prototypes can be created to show the entire design (horizontal prototype) or created to test 1-2 specific features of the design (vertical prototype). From the level of functionality and detailed features, the prototype is divided into two, namely:

1. **Low fidelity prototype**

Generally used in the early stages of design, this type of prototype is simpler, easier to make and uses cheap materials such as paper. Advantages of low fidelity prototypes: cheap and fast, changes or iterations are easy to make, anyone can make them, more suitable for showing an overview of the product, encouraging ideas and suggestions for improvement because this prototype clearly looks unfinished. Meanwhile, the disadvantages are: less tangible, too simple so users find it difficult to interact with the prototype, the complexity of the design may not appear in the prototype.

2. **High fidelity prototype**

Often used in the final stages of design, this type of prototype is made to more closely resemble the final product with more detailed functions and features. The advantages of a high fidelity prototype are: it is more attractive - everyone can imagine the final form of the product, trials will produce more accurate input, it can be tested widely, and its potential use is more clearly visible. Disadvantages: more expensive and difficult to manufacture, more difficult for designers to make major repairs/modifications. Sometimes

designers divide high fidelity prototypes into mid-fidelity prototypes (showing only basic features) and high fidelity prototypes (closer to the final product). This is relative; the most important thing is to focus on user needs as we develop the prototype.

Based on material and use, there are various prototype variations:

1. Sketches and diagrams - the simplest prototypes. Because they are two-dimensional, they are easy to create and change, but they are less interactive and difficult to show complex features.

2. Paper prototype - including low fidelity prototype, made from various types of paper. Can be 2D or 3D. Cheap, easy to create and change, allows limited interaction.

3. Physical models - such as mockups and 3D prints. Models can be made using ready-made materials such as Lego, toy animals or plants, etc. The use of ready-made materials makes it easier to modify the model, allowing for more iterations.

4. Storyboard - in the form of a sequence of events displayed visually in the form of pictures and writing. Can be used to simulate systems or service products.

5. Persona and Journey - generally used to simulate systems or service products. The quality of the user experience can also be visualized in the journey so that designers can map out the parts of the design that need improvement.

6. Role playing - can be used to simulate systems or service products. This type of prototype has a high level of interactivity because users can be directly involved in the simulation. Role-playing games generally require certain props/tools so they need to be prepared and trained carefully.

7. Wizard-of-Oz - the designer conjures up some fake functions on the prototype so it can be tested. For example, the smart assistant feature on a digital platform is simulated by the designer typing a manual response for the user. This type of prototype is especially useful when the design feature is too complex or difficult to create, but needs to be tested on users.

8. Wireframe (digital prototyping) - some digital applications can be used to develop prototypes, usually for the development of digital products. The prototype used by designers is a digital prototype (wireframe).

Based on the Design Thinking phase, after producing a learning media prototype, then carry out user testing or trials on users. In this phase, we will explore to what extent the solution idea created by the designer can answer the specific needs of users (students), as well as understand what aspects of the solution need to be further developed.

1) First step

In carrying out user testing or trials on users, namely by choosing to combine several methods, according to the needs and abilities of the group, including:

a. Based on examiner intervention: with moderation VS without moderation The "no moderation" method means the examiner plays the role completely as an observer. Users

are free to interact with the prototype. The "moderated" method means the examiner provides explanations and directions during the testing process.

b. Based on proximity to users: in-person testing VS remote testing In in-person testing, the tester is face to face with the user. In remote testing, users interact with the prototype in their natural setting (e.g., teachers and students try out a digital application prototype in class while testers observe the backend data). The advantage is that the response you get will be more accurate/natural. The downside is that testers cannot carry out dialogue/confirmation with users.

c. Based on the type of data produced: exploratory VS assessment VS comparative

1. The exploratory method is open-ended or open. Users can provide feedback in any form: comments, suggestions, emotional responses, and so on. Usually carried out in the early stages of design development to identify potential and new ideas for the design.

2. The assessment method aims to test the level of user satisfaction with the design. Generally intended to measure the functionality of a design.

3. Comparative method, the user is given several similar solutions and asked to choose one. This method is useful for measuring competitors (in the context of commercial products), as well as identifying specific features that users prefer/need.

2) Second step

After choosing a testing method is planning the trial. By selecting target users according to the level chosen by the planning group. Do you just use a few users and do in-depth testing? Or use a group of users (for example teachers and students in one class) and observe their response to the designed learning media?

3) Three step

Implementation of trials that can be carried out outside the classroom. If possible, record the test session.

4) Fourth step

After conducting trials, collect user response data in an evaluation matrix. Apart from relying on notes, you can play back video recordings or other documentation (if any) to find interesting things that you missed.

3. RESULTS AND DISCUSSION

3.1. Building Empathy (Empathize)

The first stage in the design thinking process is understanding the problem. The author conducted observations and interviews at SDN 122 Cijawura. Observations were carried out in each class and then complemented by interviews with the homeroom teacher regarding general student problems found in the class. As for the results of class observations and interviews with the homeroom teacher, it was found that several problems occurred, namely that there were students who experienced difficulties in the learning process due to their lack of reading skills. After finding this problem, we conducted interviews with students who experienced difficulties in the learning process (figure 3).
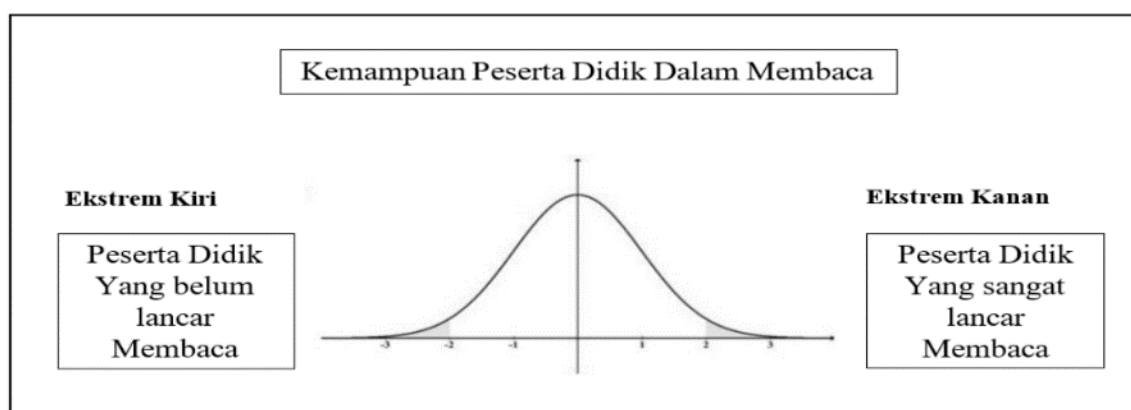
Figure 3. Learning Observation

To build empathy for students, the In-depth Interview stage is carried out, which consists of sample selection, question formulation, IDI implementation and data processing and analysis.

1. Sample selection

Sample selection used the extremes and lenses strategy. As for extremes and lenses, this problem can be seen in Figure 4 below.

Figure 4. Extremes and lenses strategy

2. Formulating Questions

After determining the interview subject using the extremes and lenses strategy, the next step is to formulate questions. The following is a formulation of questions and interview guidelines which have been compiled in table 1 below.

Table 1. Formulation of questions and interview guidelines

Pedoman Wawancara	
***Introduce Yourself* (perkenalan) dan *Introduce Project* (gambaran singkat wawancara):** Assalamu'alaikum Wr. Wb. Perkenalkan nama Ibu Yulia Agustina, terimakasih ya sudah meluangkan waktunya, jangan tegang disini ibu hanya ingin ngobrol dengan Ananda terkait dengan belajar, apakah bersedia? **Build Report (Pertanyaan pengantar):** 1. Boleh memperkenalkan diri, siapa nama lengkap ananda? 2. Biasanya dipanggil apa sama teman - teman? 3. Dimana alamat rumah ananda? 4. Seberapa jauh jarak dari rumah ananda menuju sekolah? 5. Menggunakan kendaraan apa ananda berangkat ataupun pulang sekolah? 6. Ananda tinggal di rumah bersama siapa saja? **Evoke Stories (Pertanyaan Sederhana):** 1. Apakah sebelumnya Ananda bersekolah di TK sebelum ke SD?	***Explore* Emotions (Pertanyaan kunci):** 1. Apakah ananda memiliki guru favorit di sekolah? 2. Mengapa ananda menyukai guru tersebut? 2. Apa yang ananda paling sukai ketika belajar dengan guru tersebut? 3. Bagaimana cara guru tersebut mengajar di kelas sehingga ananda menyukai guru tersebut? 4. Apakah saat belajar dengan guru tersebut ananda pernah ditugaskan untuk membaca? 5. Apakah ananda sudah bisa membaca? Kalo tidak apa yang ananda lakukan? ***Question Statement* (Pertanyaan Evoke mendalam):** 1. Apakah kamu suka membaca? 2. Kenapa kamu belum dapat membaca? 3. Apakah kamu mengalami kesulitan saat membaca? 4. Ketika belajar apakah teman kamu suka membantu dalam membaca? 5. Apakah kamu ingin belajar membaca?
2. Ananda mulai belajar membaca sejak kapan? 3. Apakah ananda suka membaca buku? 4. Pelajaran apa yang ananda sukai? 5. Apakah di rumah ananda sering membaca? Bersama siapa? 6. Menurut ananda apakah membaca sesuatu yang mudah atau sulit? 7. Kegiatan apa saja yang ananda lakukan jika sedang di rumah?	**Thank and Wrap-up (kesimpulan atau penguatan):** Terima kasih ya karena Ananda sudah meluangkan waktu untuk ngobrol dengan ibu hari ini, ternyata kamu suka pelajaran Matematika, kamu sudah bagus dalam berhitung, ibu harap dalam pelajaran lainnya pun sama kamu bersemangat seperti belajar matematika, apalagi membaca ya harus ditambah dengan teliti dan fokusnyaa agar tepat dan benar.

3. Implementation of IDI

The IDI was carried out on October 19 2023 for five students who were in the extremes group using questions that had been prepared.

4. Data processing and analysis

After implementing the IDI, the processing and analysis stage of the interview data was carried out. Data processing and analysis techniques use divergent - convergent techniques. The following is the important information obtained.

1. Students don't know letters yet

2. Lack of motivation to read in students

3. Learning to read is considered boring by students

4. Lack of guidance and attention to learning to read by parents

5. Students like game-based learning

After obtaining important information obtained from interviews, the next stage is building understanding (Crafting Insight) of students who are target users. In table 2 below is the crafting Insight that has been compiled

Table 2. Crafting Insight

Merangkai Pemahaman/*Crafting Insight*	
Ternyata, peserta didik harus belajar membaca tambahan di rumah	Ternyata, peserta didik belum mengenal huruf
Ternyata, peserta didik harus sering belajar membaca di sekolah bersama guru	Ternyata, peserta didik menyukai pembelajaran berbasis permainan
Ternyata, pembelajaran membaca yang dianggap membosankan oleh peserta didik	Ternyata, peserta didik lebih menyukai aktivitas fisik
Ternyata, peserta didik sulit untuk mengingat huruf	Ternyata, untuk meningkatkan kemampuan membaca peserta didik perlu adanya latihan secara konsisten
Ternyata, kurangnya bimbingan dan perhatian belajar membaca oleh orang tua	Ternyata, kurang motivasi membaca dalam peserta didik

From the understandings above, one understanding is selected which is considered the most problematic, most valuable and most appropriate to the field of study. This understanding becomes the basis of the next phase. The understanding is "it turns out students don't know letters".

3.2 Formulate Goals (Define)

After successfully building empathy, the next phase is define (formulating goals). The define phase aims to formulate design objectives (Design Challenge). The Design Challenge used uses the formula:

Bagaimana kita bisa… (kegiatan) agar … (sasaran pengguna) bisa… (kebutuhan spesifik)?

The following is the resulting design challenge:

Bagaimana kita bisa membuat design belajar membaca media pembelajaran interaktif yang mudah dan efektif agar siswa kelas 2 dapat meningkatkan kemampuan membacanya	Bagaimana kita bisa membuat design belajar membaca yang media pembelajaran interaktif menyenangkan dan menantang agar siswa kelas 2 dapat berminat dan termotivasi dalam pembelajaran membaca	Bagaimana kita bisa membuat design belajar membaca yang menyenangkan agar siswa kelas 2 dapat meningkatkan keterampilan membaca	Bagaimana kita bisa membuat design belajar membaca yang bermakna agar siswa kelas 2 dapat mengenal huruf	Bagaimana kita bisa membuat design belajar membaca yang menyenangkan agar siswa kelas 2 dapat membaca dengan lancar
Bagaimana kita bisa membuat design belajar membaca yang	Bagaimana kita bisa membuat design belajar yang bermakna	Bagaimana kita bisa membuat design belajar membaca yang	Bagaimana kita bisa membuat media pembelajaran	Bagaiamana kita bisa membuat design belajar membaca yang
menyenangkan dan menantang agar siswa kelas 2 dapat memiliki kemampuan membaca yang sesuai dengan perkembanganny a	agar siswa kelas 2 dapat meningkatkan minat dan motivasinya dalam membaca	menyenangkan agar siswa kelas 2 dapat meningkatkan motivasi belajar membaca	membaca agar peserta didik dapat mengenal huruf dan meningkatkan kemampuan membaca	dapat meningkatkan motivasi belajar membaca agar siswa kelas 2 dapat membaca dengan lancar.

Based on several design challenge formulations that have been made, there is a design challenge formulation that best suits the needs of students, namely: ***"How can we create interactive learning media that is interesting, challenging, increases motivation, and helps students recognize letters"***

3.3 Creating Solutions (Ideate)

After successfully determining the design challenge, the next stage is the Ideation phase. Searching for ideas in this phase uses silent brainstorming techniques. Some of the ideas generated based on the challenge design can be seen in table 3 below.

Table 3. The ideas generated based on the design challenge

"Bagaimana kita bisa membuat media pembelajaran interaktif yang menarik, menantang, meningkatkan motivasi, dan membantu peserta didik mengenal huruf"		
IDE 1	**IDE 2**	**IDE 3**
Papan Membaca	JUBACA (Jurnal Membaca)	Media Kartu Baca (KACA)
IDE 6	**IDE 5**	**IDE 4**
Aplikasi Membaca (Read Fun)	Program Literasi	Big Book

The next idea is to use the impose constraints method with two different scenarios.

1. **Scenario 1**

Bayangkan Anda sedang berada di daerah terdepan, terpencil, dan tertinggal, dimana sulit untuk menyediakan alat dan bahan belajar seperti di kota besar. Memperhitungkan kondisi tersebut, ide apa saja yang dapat menjawab design challenge Anda? Hasilkan sebanyak - banyaknya ide dalam waktu 3 menit				
IDE 1	**IDE 2**	**IDE 3**	**IDE 4**	**IDE 5**
Memanfaatkan media konvensional berupa buku bacaan.	Media Roda Membaca	Memanfaatkan kardus bekas untuk dijadikan kartu baca	Menggunakan kertas bekas untuk membuat huruf dan sapu	Menggunakan tutup botol huruf

2. **Scenario 2**

Dalam waktu 3 menit, gambarkan berbagai macam ide yang dapat menjawab design challange Anda namun kondisi anda dan rekan kelompok tidak memiliki anggaran untuk produksi atau pembuatan media ajar				
IDE 1	**IDE 2**	**IDE 3**	**IDE 4**	**IDE 5**
Penggunaan media digital yang tidak mengeluarkan biaya di sekolah	Penggunaan media konvensional seperti buku yang ada	Memanfaatkan kardus bekas untuk dijadikan kartu baca	Menggunakan kertas bekas untuk membuat huruf dan sapu	Menggunakan tutup botol huruf

After having several ideas, a vote is then held to determine which ideas will be developed. Things considered in this voting are in terms of impact and effort. Each group member has three votes for both impact and effort. Votes for impact are represented by a star symbol (⋆). These votes are given to ideas that are felt to have high impact. Meanwhile, effort is represented by the heart symbol (❤). This vote is given to the idea that is felt to have the lowest effort to carry out. The idea that has the most votes will be the idea that will be developed in the next phase. In table 4 below is a table of voting results from users (students).

Table 4. User Feedback Results

Ide	Pilihan Suara	
	Dampak (☆)	Upaya (♡)
Papan membaca	☆	♡
JUBACA (Jurnal Membaca)	☆	
KACA (Kartu Baca)	☆ ☆ ☆ ☆	♡ ♡ ♡ ♡
Big Book	☆	
Program Literasi		♡
Aplikasi Membaca (Fun Read)	☆ ☆	
Memanfaatkan media konvensional berupa buku bacaan.	☆ ☆	♡
Media Roda Membaca	☆	♡
Memanfaatkan kardus bekas untuk dijadikan kartu baca	☆	♡
Memanfaatkan barang bekas yang ada di kelas salah satunya kertas dan lidi	☆	♡ ♡ ♡
Menggunakan tutup botol huruf	☆	♡ ♡ ♡

Based on the voting results, the media with the highest impact and lowest effort is KACA (Reading Card) media, therefore the learning media that we will develop is KACA media.

3.4 Prototyping and Testing

Based on the level of functionality and detailed features, the prototype used in this research is a high fidelity prototype, because this type of prototype is made to more closely resemble the final product with more detailed functions and features. The advantage of a high fidelity prototype is that it is more attractive - everyone can imagine the final form of the product, trials will produce more accurate feedback, it can be tested widely, and its potential uses are more clearly visible. The prototype variation used by designers is Wireframe (digital prototype), namely using several digital applications that can be used to develop prototypes, usually for the development of digital products. The designer designs a prototype using several elements adapted to the idea (KACA/Kartu Baca). The prototype can be seen in Figure 5 below:
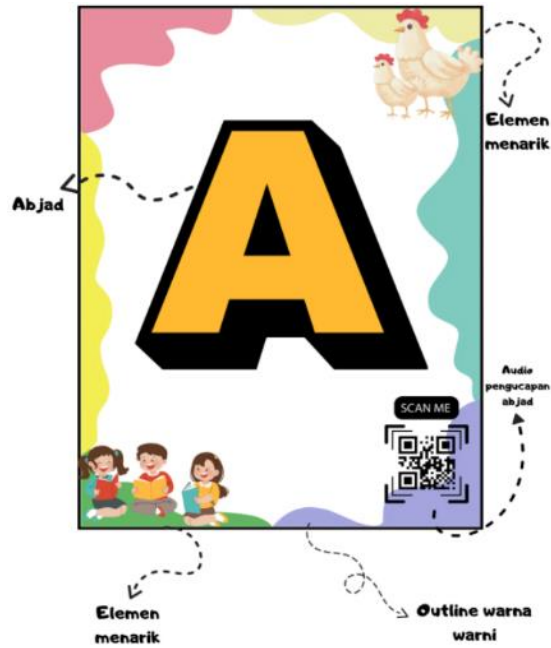
Figure 5. KACA Prototype (Kartu Baca)

The features contained in the idea KACA (Kartu Baca) include:

1. Draw interesting elements. This can be seen in the Card image, there are a variety of elements that attract the attention of users (students), namely by including images that users (students) often encounter in their daily lives, including a picture of three children reading a book and a customized picture of an animal. with the initial letter of the alphabet.

2. Bright colors. The colors on the card especially the outline/edges and font colors, are varied and bright. Of course this can attract students' attention.

3. Clear letter font. The shape or type of font is clear and the letters used in KACA are capital letters so that it can make it easier for students to recognize and remember the letters/alphabets found on KACA (Kartu Baca). Generally, lower class students are introduced to uppercase or capital letters first before being introduced to lowercase letters.

4. Appropriate font size. The size of the letters on KACA is not too big and not too small, of course this aims to make it easier for users (students) to use KACA (Kartu Baca).

5. Scan the barcode. On the KACA prototype there is a barcode that is adjusted to the letters/alphabets on the KACA. This makes KACA digitally accessible. If the user (student) scans the barcode, audio will immediately appear based on the letters on the KACA. This really attracts students' attention because it is combined with digital media.

After producing a learning media prototype, then carry out user testing or trials on users. In this phase, we will explore to what extent the solution idea created by the designer can answer the specific needs of users (students), and also understand what aspects of the solution need to be developed further. The steps for carrying out user testing or testing on users are:

The first step, carrying out user testing or testing on users, is by choosing to combine several methods, adjusting them to the needs and abilities of the group. The methods used are:

1. Based on the examiner's intervention, the designer uses the moderation method in the examiner's intervention. The "moderated" method means the examiner provides explanations and directions during the testing process. The examiner provides explanations and directions during the testing process.

2. Based on closeness to the user. The designer in conducting closeness with the user is carried out in direct trials, the tester meets face to face with the user.

3. Based on the type of data produced, the author uses an assessment method which aims to test the level of user satisfaction with the design. Generally intended to measure the functionality of a design. In this case, users feel satisfied with this KACA media, users feel learning is more fun and meaningful (figure 6)..

Figure 6. Documentation photo

The second step, planning the trial. User targeting was carried out at the lower grade elementary school level, especially grade 2, targeting several users, namely 5 people, and observing their response to the KACA learning media.

The third step, carry out trials carried out in the classroom. In carrying out trials, there are several game rules that are adjusted to the level of the game which consists of 3 levels, namely:

1) Look, Name It! In the level 1 game, the KACA is kept in the middle of the group, students are asked to name the letters they take in sequence. Each student who names the card correctly gets 10 points.

2) Look, Put It Together! In the level 2 game, after naming the letters they have, students are instructed to make syllables based on the letters they already have by combining consonant and vowel letters by members of their respective groups. After that, the teacher instructs students to read the resulting syllables, for example ba, ca, ra, ka, etc. Each group that arranges the cards and reads the letters correctly gets 20 points

3) Look, Read! In level 3 games, the teacher instructs students to arrange syllables into words using prepared image media. The images used are objects that students can easily find, such as rocks, books, mothers, and so on (figure 7).

Figure 7. Documentation photo

The fourth step, namely after conducting trials, collects user response data in the evaluation matrix in table 5 below.

Table 5. The evaluation matrix

Hal yang sudah baik/berhasil:	Hal yang kurang baik/kurang berhasil:
Peserta didik menyukai board game media KACA (semua peserta didik tampak antusias dan terlibat aktif saat guru membawakan board game media KACA)	Scan barcode yang terdapat pada KACA belum diaplikasikan secara maksimal
Ide-ide yang muncul:	**Pertanyaan/kebingungan yang muncul:**
Menambahkan hadiah bagi pemenang permainan	"Dikemanakan KACA yang telah dibuka/dipakai?"

4. CONCLUSION

The design thinking that was applied resulted in a media called KACA (reading cards) based on board games. This media was created to help students who do not know letters in class 2 at SDN 122 Cijawura. After being tested on the target user (users), the users looked happy, enthusiastic and enthusiastic about participating in the game. Based on the trial results, this board game-based card media can be implemented both in learning and providing ongoing assessments to improve students' letter recognition and reading abilities.

The follow-up plans for the prototype that have been made include, namely perfecting the prototype based on the trials that have been carried out, taking an inventory of media KACA (Kartu Baca) to the school where the PPL is located, namely SDN 122 Cijawura as a medium to support learning in class related to reading material, and making a board. Board game rules and packaging for KACA (Kartu Baca) media so that it can be used by anyone (adults).

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