

The Design of “Gerak Waktu” Flash Cards for 3rd and 4th Grade Students at SLB – BC Bina Widya

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Abstract

Special Schools (*Sekolah Luar Biasa*) play a vital role in ensuring access to education for children with special needs, including those who are deaf, blind, intellectually disabled, autistic, and those with other learning disabilities. A persistent issue to date is the lack of educational media regarding time expressions for deaf children to facilitate the teaching of Indonesian Sign Language System known as SIBI (*Sistem Isyarat Bahasa Indonesia*). This study aims to design educational media that are educational, effective, and efficient for introducing SIBI to deaf children at SLB-BC Bina Widya. This study employs a qualitative research method. The data used in this study consists of primary data obtained through interviews and direct observations at SLB-BC Bina Widya, as well as secondary data sourced from various print and digital literature. The design concept involves creating engaging printed educational media presented in a visual format that combines images and text related to time expressions. The main media is a “Gerak Waktu” flashcard set containing SIBI sign language for time expressions. The illustrations are in color to increase children’s interest in learning. Supporting media are included to complement the main media, such as a progress tracking board, a calendar, a wall clock, a tote bag, stickers, and a notebook. It is expected that “Gerak Waktu” flashcards will introduce SIBI sign language to deaf children. This study aims to design educational, effective, and efficient teaching materials to introduce SIBI sign language to deaf children in Special Schools, particularly regarding time expressions. It is also expected to assist and facilitate teachers in delivering SIBI sign language media regarding time expressions.

Keywords: Flash Cards, Sign Language, Time, Deaf, SIBI.

1 INTRODUCTION

Special Schools (SLB) play a vital role in ensuring access to education for children with special needs. These schools are specifically designed to accommodate the learning needs of students with various disabilities, including deafness, blindness, intellectual disabilities, autism, and other learning disabilities. With a large and diverse population, West Java has 393 SLBs spread across various regions. West Bandung Regency, which is part of West Java, also has a number of SLBs that provide educational services for children with special needs. One of them is SLB-BC Bina Widya.

The learning process at SLB-BC Bina Widya is tailored to each student’s educational level and type of disability. For deaf students, teachers use SIBI (Indonesian Sign Language System), provided by verbal communication featuring slow mouth movements and clear articulation. Visual aids such as pictures and text are also used to facilitate student

understanding. To ensure optimal learning, the teachers at the school do not only rely solely on textbooks, they also independently search and print various images relevant to the learning material, making the learning process more engaging and easier for students to understand.

The subjects at Special Schools (SLB) are similar to those in regular schools, but there are additional subjects tailored to the students’ disabilities. For deaf students, there is a sign language class. Teachers use both printed and digital dictionaries of SIBI (Indonesian Sign Language System) when teaching. Based on the results of the observation, the SIBI sign language learning media used in the school is not optimal yet. The printed dictionary, organized alphabetically without thematic grouping, causes teachers to waste a lot of time. Additionally, the images in the dictionary are unclear and unappealing to the children. The digital dictionary, although promising, has several limitations. The learning process must take place in the teachers’ lounge due to



a lack of projectors in the classrooms, making it easy for the session to be disrupted by the activities of other teachers and students. The font used in the digital dictionary is also difficult for students to read. Furthermore, the incomplete vocabulary related to time expressions—in both the print and digital dictionaries—makes it difficult for teachers to convey the material.

An interview with one of the deaf teachers at SLB-BC Bina Widya, Ms. Nurhayati S.Pd., revealed that students demonstrate a better level of understanding of the learning material when it is presented in the form of visual media that combines images and text. Unfortunately, the limited availability of engaging print learning materials, particularly for the topic of time, poses a unique challenge in providing the variety of learning experiences students need. This lack of resources often leads to students losing interest and struggling to grasp the concept of time. For deaf children, understanding the concept of time is crucial to help them adapt to their environment and develop self-discipline. The initial stages of introducing time can begin by teaching time terms such as morning, afternoon, evening, and night, as well as day, month, date, year, and the concept of a clock.

Based on these issues, there is a need to design educational media specifically intended for teaching SIBI Sign Language to deaf children. Printed educational media is considered the primary and most effective tool for teaching sign language to them. The major advantage of print media is its flexibility, which allows it to be used in various locations without relying on electricity or internet access. Additionally, this print media will be designed to be more interactive and visually appealing to enhance the learning motivation of deaf children.

2 LITERATURE REVIEW

2.1 Principles of Visual Communication Design

In Visual Communication Design, there are several principles used to create satisfying works or designs. Here are some principles commonly applied in Visual Communication Design [1]:

1. Unity
Unity refers to the cohesion of design elements that creates a harmonious impression, where one element supports another to convey the intended message [1].
2. Balance
Balance means that all design elements must appear visually balanced to be pleasing to the eye and must harmonize the balance between text,

color, and images so that the design does not appear to be weighted heavily on one side [1].

3. Rhythm
Rhythm is the creation of design through the use of rhythm. Rhythm is created by different elements with rhythmic patterns and consistency [1].
4. Emphasis
Emphasis is directing the viewer's attention or highlighting a specific object or section to convey the intended message [1].
5. Proportion
Proportion is the comparative relationship between one part and another, or between parts and the whole, without altering the length or width [1].

2.2 Typography

Typography functions as a discipline or strategy involving methods for arranging layout, form, size, and characteristics with specific objectives, particularly aesthetic ones [2]. Typography is the art of arranging text, including font selection and layout, to convey information effectively and visually appealingly. It involves creating unique and legible letters and text so that readers can clearly understand the message being conveyed [3] [4].

2.3 Illustration

Illustration plays a significant role in children's conceptual understanding of what they see in pictures or illustrations. Illustrations and text must form a cohesive whole with the story being presented [5]. This is in line with findings by Fatmawati et al. [6] which state that illustrated storybooks help children understand new information more effectively because visual elements dominate the storytelling process. Well-designed illustrations can improve children's cognitive abilities, imagination, and intellectual development [7]. Just as the genres in literature, in illustration, there are categories based on the style and form of imagery, as well as the visual language contained in the illustrations in the book. There is another categorization based on the combination of images and text in picture books that can refer to Scott McCloud's idea, namely Interdependent Combination, which is the most common combination, where words and images support each other so that it is impossible for one element to be removed [8] [9].

2.3.1 Cartoon Illustration

In this project, the author uses cartoon-style illustrations to capture the readers' attention, as the target audience consists of deaf children in grades 3–4 of elementary school. Cartoon illustrations are humorous or colorful illustrations commonly found in picture books, comics, and magazines intended for children [10].

2.4 Character Design

In the field of illustration, characters play a crucial role. Describing characters in detail is essential, including their traits, movements, appearance, and clothing. In addition to facial expressions, body movements and body language also significantly influence bringing characters to life in illustrations. When creating characters, it is important to follow design principles as a framework for shaping them. These principles include basic shapes, body structure, clothing, color, and other elements that contribute to the overall character design [11].

2.5 Layout

Layout can also be defined as the arrangement of design elements within a specific area or medium to support the concept or message being conveyed. The primary purpose of layout is to present images and text in a way that facilitates communication, thereby making it easier for readers to understand the information [12] [13]. In this project, the flash card layout was designed using the Picture Window Layout. This layout is a type of arrangement that highlights images or photos as the primary elements in the design.

2.6 Graphic Production

A technique or method of conveying messages, ideas, or information to a broad audience [14]. This process involves reproducing artwork or designs through printing techniques, thereby enabling the mass distribution of such works [15]. This process involves selecting appropriate media, printing techniques, and finishing methods to achieve the desired results.

2.7 Flash Card

Flash cards are visual learning tools in the form of cards containing images, text, or symbols that function as cues to help students remember concepts or information. Flashcards are effective instructional media for improving students' reading comprehension [16]. Flashcards present information visually and concisely, making abstract concepts easier to understand [17]. Each card is equipped with an image

or illustration, which can be artwork, a photograph, or a printed digital image. These images serve as visual representations of the concepts or information intended to be conveyed, according to Susilana and Riyana [18]. Based on the explanation above, it can be concluded that flashcards can be defined as a visual learning tool consisting of cards of various sizes. These cards feature images, text, or symbols that serve as visual representations of the concepts being conveyed.

2.8 Deafness

A person with deafness experiences limitations in hearing that significantly affect communication and vocabulary development [19]. Due to these limitations, deaf children rely heavily on visual-based learning approaches. Visual media such as images, flashcards, and other visual aids are essential to support their understanding of learning materials [20]. Furthermore, the use of flashcards combined with visual and sign language elements has been proven to improve vocabulary mastery, attention, and motivation in deaf students [21]. Visual learning tools, including images and illustrated cards, also help learners grasp concepts more concretely and support independent learning [22].

2.9 Sign Language

Sign language is a non-verbal communication system used by individuals with hearing or speech impairments to facilitate interaction [23]. In Indonesia, two major sign language systems are used: the Indonesian Sign Language System (SIBI) and Indonesian Sign Language (BISINDO) [24]. SIBI is commonly used in formal educational settings and follows standardized signs published by the government [25], while BISINDO is more widely used as a natural language within the Deaf community [26]. In addition, sign language communication involves not only hand gestures but also facial expressions, body movements, and lip movements as part of total communication

3 RESEARCH METHODS

The method used in this study is the qualitative method. Qualitative methods place greater emphasis on observing phenomena and delving into the substantive meaning of those phenomena. The analysis and depth of qualitative research are greatly influenced by the power of the words and sentences used. The focus of qualitative research is on the process and the interpretation of the results [27]. Qualitative research pays closer attention to human elements, objects, and institutions, as well as the relationships or interactions

among these elements, in an effort to understand an event, behavior, or phenomenon [28].

4 RESULTS AND DISCUSSION

4.1 History of SLB Bina Widya

SLB-BC Bina Widya was founded around 1990, initially located near Padalarang Station. In 1999, the school decided to relocate to the Batujajar area. In 2001, the school finally purchased land near Haurngambang Street, which has since developed into a permanent learning facility for students with special needs in the Batujajar subdistrict and surrounding areas. At its beginning, SLB BC Bina Widya served only students with hearing impairments and intellectual disabilities. However, over time, the school began accepting students with autism, physical disabilities, and other conditions.



Figure 1. SLB-BC Bina Widya Logo.

Source: <https://www.instagram.com/slbbinawidya/>

4.2 Target Audience Data

The target audience is the group of people the communication message aims to reach. The target refers to specific, measurable objectives to be achieved. Defining the target audience is crucial to ensure that the information conveyed reaches the people who are the primary focus of the message. The audience can also serve as a reference for determining the target audience, with categories including demographic, geographic, and psychographic factors. The following are the target audience criteria to be established:

1. Demographic
 - a. Age : 9–10 years old (3rd–4th grade elementary school)
 - b. Gender : male and female
 - c. Status : Students of SLB-BC Bina Widya

2. Geographic

The geographic scope of this design targets the Batujajar Subdistrict, West Bandung Regency. This location was chosen based on its geographic proximity and the target audience from SLB-BC Bina Widya.
3. Psychographic

The psychographic profile for this design consists of children in grades 3–4 of elementary school who have hearing impairments or are deaf.

4.3 Segmentation, Target Audience, and Positioning

The following are the segmentation, target audience, and positioning identified by the author, including:

1. Segmentation

Based on the explanation above, the segmentation in this design is intended for deaf children who are students at SLB-BC Bina Widya.
2. Target Audience

Based on the explanation above, the target audience for this design is deaf children who are students at SLB-BC Bina Widya in grades 3–4 of elementary school.
3. Positioning

The print educational media consists of flashcards designed to introduce the concept of time, in order to make the learning process both educational and efficient.

4.4 Observation Results

Based on the observation results, the SIBI sign language learning materials used at the school are not yet optimal. According to the teacher, the printed dictionary, which is organized alphabetically without thematic grouping, is ineffective. Additionally, the images in the dictionary are unclear and unappealing to the children. The digital dictionary, although promising, has several limitations. The learning process must take place in the teachers' lounge due to a lack of projectors in the classrooms, making it prone to disruption by the activities of other teachers and students. The font used in the digital dictionary is also difficult for students to read. Furthermore, the incomplete vocabulary related to time expressions—in both the printed and digital dictionaries—makes it difficult for teachers to convey the material. The following is the SIBI sign language dictionary used to

support the sign language learning process at SLB-BC Bina Widya:

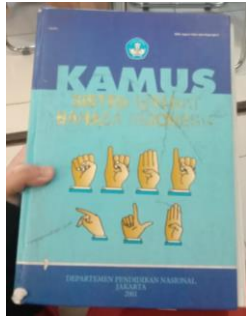


Figure 2. SIBI Dictionary at SLB-BC Bina Widya.
Source: Author's Documentation.

Figure 2 shows the contents of the SIBI sign language dictionary, which the author will use as a reference for designing sign language flashcards on time expressions.

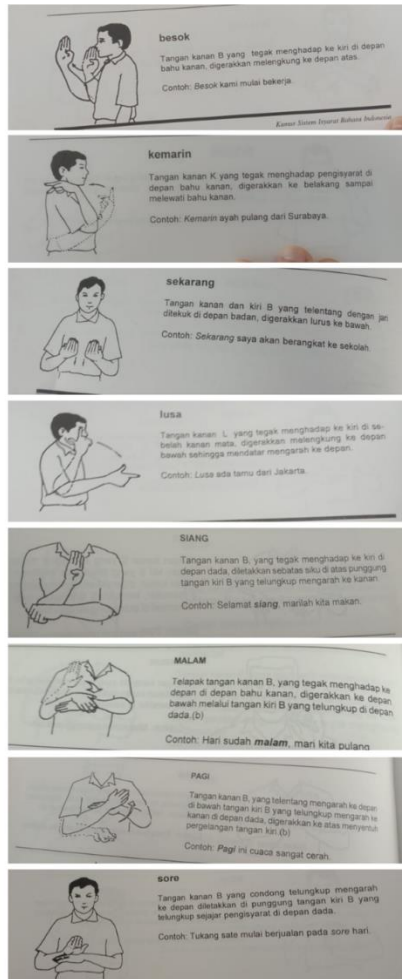


Figure 3. The Contents of the SIBI Dictionar.
Source: Author's Documentation.

4.5 Interview Results

The author conducted an interview with the principal of SLB-BC Bina Widya, Mrs. Neti K. Hodijah, M.Pd. This interview took place at SLB-BC Bina Widya, located on Jl. Haurngambang, Batujajar Subdistrict, West Bandung Regency. The results of the interview with Mrs. Neti regarding the sign language learning process at the school revealed that the school uses the SIBI (Indonesian Sign Language System). The learning materials used include printed dictionaries and digital dictionaries. The printed dictionaries themselves are large and thick; additionally, the images in the printed dictionaries are quite simple, as they use only black and white.



Figure 4. Interview with the Principal of SLB-BC Bina Widya,
Source: Author's Documentation.

An interview conducted with one of the teachers for the deaf at SLB-BC Bina Widya, Ms. Nurhayati, revealed that the children demonstrated a better level of understanding of the learning material when it was presented in the form of visual media combining images and text. Unfortunately, the limited availability of engaging print learning materials, particularly for the concept of time, poses a unique challenge in providing the variety of learning experiences students need. This lack of learning materials often leads to students losing interest and struggling to grasp the concept of time. For deaf children, understanding the concept of time is crucial to help them adapt to their environment and develop self-discipline. The initial stages of introducing time can begin by teaching the names of times such as morning, afternoon, evening, and night, as well as days, months, dates, years, and the concept of the clock.



Figure 5. Interview with teacher of SLB-BC Bina Widya

Source: Author's Documentation.

4.6 SWOT Analysis

1. Strengths
 - a. Established in 1990
 - b. The only special education school in Batujajar subdistrict
 - c. Offers vocational programs such as cooking, gardening, and scouting
 - d. Active on social media, particularly Instagram (providing education about children with special needs, sharing routine school activities, and posting highlights of competitions)
2. Weakness
 - a. Lack of teaching staff
 - b. Lack of illustrated print learning materials for deaf children
 - c. Lack of facilities and infrastructure to support sign language learning in the classroom.
3. Opportunities
 - a. The large number of children with special needs in the Batujajar subdistrict
 - b. The large number of parents in Batujajar seeking special needs schools that incorporate Islamic teachings
4. Threats
 - a. Other schools with more adequate facilities and resources

4.7 Analisis 5W+1H

The following is an explanation of the 5W+1H analysis of SLB-BC Bina Widya:

1. What
The design of educational materials was motivated by the lack of effective and efficient printed educational materials in SIBI sign language regarding time expressions.

2. Who
Deaf students in grades 3–4 of elementary school attending SLB-BC Bina Widya.

3. Where
Based on the geographical location of SLB-BC Bina Widya, the author decided to select West Bandung Regency.

4. When
This design was created in 2024.

5. Why
Due to the lack of illustrated print educational materials that can facilitate the learning process of SIBI sign language, particularly regarding time expressions.

6. How
Creating a design for illustrated print educational materials in the form of educational and efficient SIBI sign language flashcards.

4.8 Design Strategy

Based on the results of interviews conducted with SLB-BC Bina Widya, it was found that the children demonstrated a better level of understanding of the learning material when it was presented in the form of visual media combining images and text. Flashcards will serve as the main medium in this design, which is expected to assist teachers of deaf students in grades 3–4 at SLB-BC Bina Widya in the process of teaching SIBI sign language regarding time expressions. This aims to make the learning process more educational and efficient.

4.9 Communication Strategy

Clear images and illustrations can help students visualize sign language movements accurately. Interactive activities such as question-and-answer sessions engage students and enhance their understanding. Each flashcard contains a clear explanation of the meaning of the movement, examples of usage in different contexts, and easy-to-follow movement instructions. By linking time signs to familiar daily activities, students can easily understand and remember time concepts.

4.10 Message Strategy

The message strategies used in this design are as follows:

1. Emotional Approach

In this approach, educational content on sign language gestures related to time is presented using illustrations of children and attractive colors, thereby creating an enjoyable experience.

2. Rational Approach

These flashcards emphasize the selection of visual elements and text that are clear, simple, and relevant to the understanding of deaf children. Referencing the SIBI Sign Language dictionary, the goal is to ensure that information about time expressions is conveyed effectively, educationally, and efficiently.

4.11 Media Strategy

The main media used in this design are SIBI sign language flashcards on time expressions. Supporting media include wall clocks, calendars, tote bags, notebooks, and stickers.

4.12 Creative Strategy

In this project, the author created the main media (flashcards), along with supporting media such as wall clocks, calendars, notebooks, tote bags, scoreboards, and stickers.

4.13 Design Principles

In designing flashcards, the author applied design principles to create an engaging and comfortable learning experience for children. The principles used include:

1. Balance: Illustrations and text are arranged in a balanced manner, creating a harmonious layout that is pleasant to the eye.
2. Emphasis: To direct the viewer's attention to key elements, such as illustrations of movements and the meanings of those movements. Variations in size, color, and typography can be used to highlight specific areas.
3. Unity: All visual elements and text are interconnected and form a cohesive whole, reinforced by the use of harmonious colors, fonts, and visual presentation.
4. Rhythm: Based on the principle of alternating repetition or variation, the repetition of characters and facial expressions arranged in varied sequences creates a rhythm that encourages children to continue paying attention to the teacher during the learning process.

4.14 Design Strategy

In this project, the flashcard layout was designed using the Picture Window Layout. The author chose this layout because large, eye-catching images naturally draw the audience's attention. Additionally, images convey messages more quickly and effectively than text.

4.14.1 Typography

The typography used in this design employs a sans-serif typeface, with the Morning Rainbow font chosen to represent the movement itself and the Rebel Kids font for the section explaining how to perform the movement. In this design, the title of the flashcard is "Gerak Waktu," where the letters "W" and "U" feature hand shapes to symbolize hand movements in sign language. Additionally, the letter "A" includes a clock hand in the center to symbolize time.

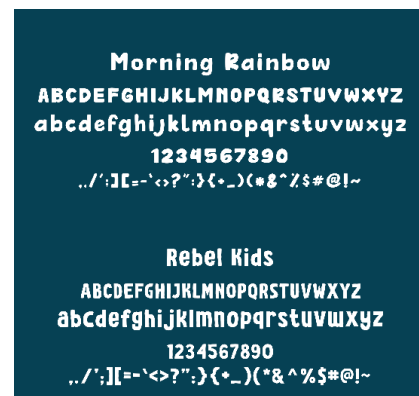


Figure 6. The Typeface of "Gerak Waktu"
Source: Author's Documentation.



Figure 7. The Logo Type of "Gerak Waktu".
Source: Author's Documentation.

4.14.2 Colors

The image above shows the colors used by the author in creating this project. The blue color itself is taken from the identity of SLB-BC Bina Widya. Furthermore, blue conveys confidence and intelligence, and it is believed to enhance concentration. Meanwhile, orange signifies warmth, cheerfulness, and energy.

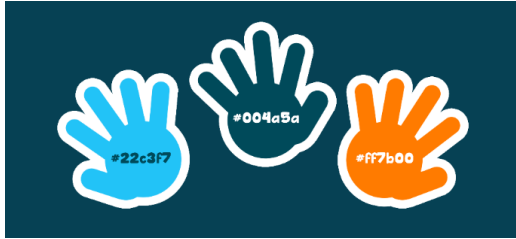


Figure 8. The Colors of “Gerak Waktu”.
Source: Author’s Documentation.

4.15 Design Production Process

4.15.1 Pre-Production

In this phase, the designer prepares for the production process, which includes creating the content for the flashcards and mood board. This design process is divided into four phases:

1. First Level

Words to be learned first. These include words: morning, afternoon, evening, night, now, tomorrow, the day after tomorrow, and yesterday.

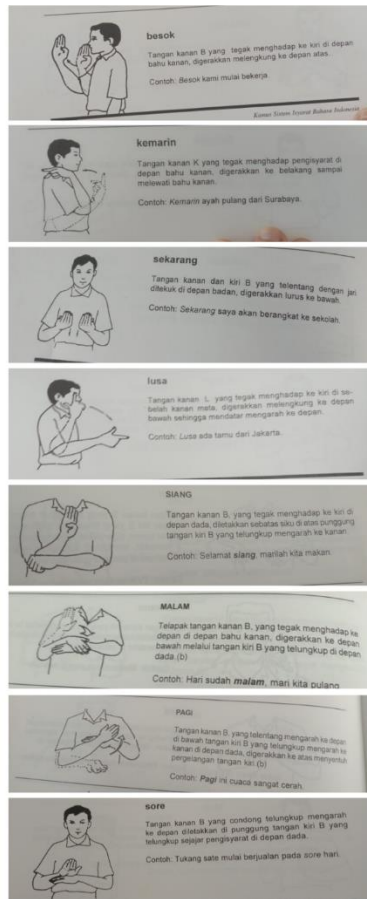


Figure 9. The First Level of “Gerak Waktu”.
Source: Author’s Documentation.

2. Second Level

Words to be learned in the second stage. These include words: day, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday.

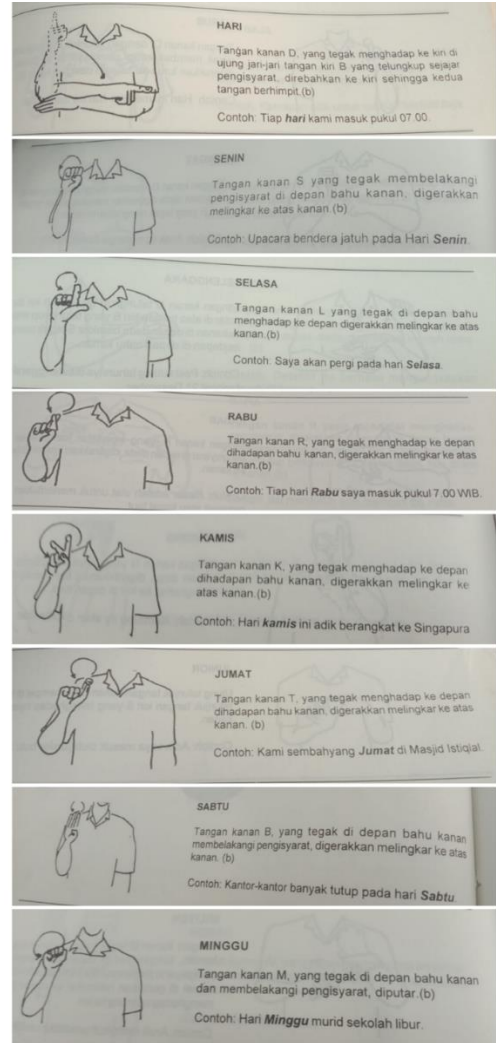


Figure 10. The Second Level of “Gerak Waktu”.
Source: Author’s Documentation.

3. Third Level

Words to be learned in the third stage. These include “year,” “date,” “month,” “January,” “February,” “March,” “April,” “May,” “June,” “July,” “August,” “September,” “October,” “November,” and “December.”

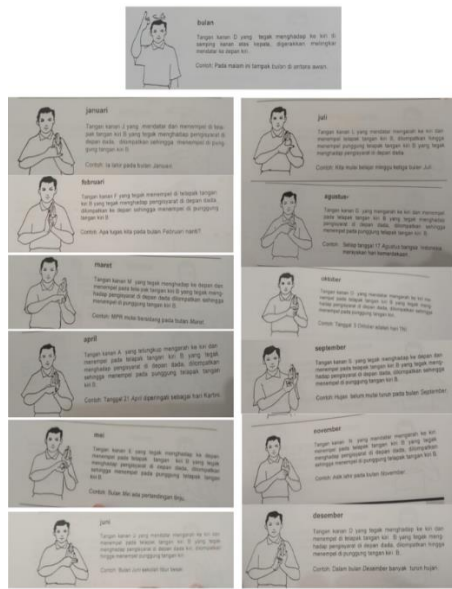


Figure 11. The Third Level of “Gerak Waktu”.
Source: Author’s Documentation.

4. Fourth Level
Words to be learned in the fourth stage. These include “less,” “more,” “hour,” “time,” “minute,” and “second.”



Figure 12. The Fourth Level of “Gerak Waktu”.
Source: Author’s Documentation.

The moodboard for this design project contains visual references such as colors, illustrations, packaging, and other elements that will be used in this design.



Figure 13. The Moodboard of “Gerak Waktu”.
Source: Author’s Documentation.

4.15.2 Production

After completing the pre-production process, the next step is to create illustrations for the main and supporting media assets in the flash card design. The process of creating illustrations of hand gestures and characters in this design uses Adobe Illustrator software to create the basic shapes. After that, to complete the coloring, such as adding shadows and highlights, the author uses Adobe Photoshop software.

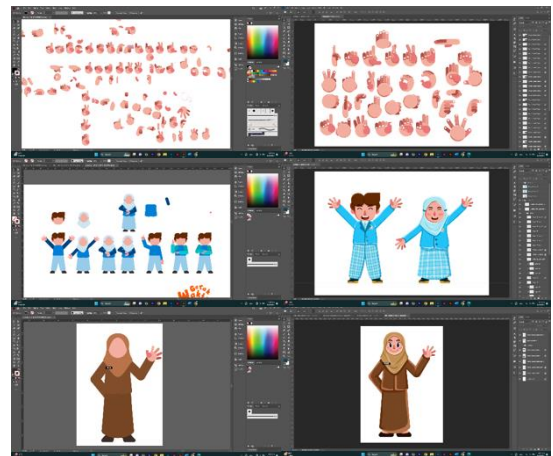


Figure 14. The Production of “Gerak Waktu”.
Source: Author’s Documentation.

4.15.3 Post-Production

Once the production process is complete, the next step is post-production. At this stage, the author begins the layout process. At this stage, the author begins the layout process for the cards, packaging, and instruction sheets. For the layout process, the author uses Adobe Photoshop.



Figure 15. The Post-Production of “Gerak Waktu”
Source: Author’s Documentation.

Next is the final stage: creating mockups for the cards and packaging. For the mockup process, the author uses Adobe Photoshop.



Figure 16. The Mockup of “Gerak Waktu”
Source: Author’s Documentation.

4.16 Printing

The cards and packaging are printed on 300 gsm ivory paper because ivory paper has a thicker and stiffer texture compared to regular paper. This makes it more durable and less prone to tearing or wrinkling. Meanwhile, 120 gsm HVS paper is used for the instruction sheet because HVS paper has a smooth and even surface, resulting in sharper, clearer, and easier-to-read prints.

4.17 Main Media

The main media in this project is a set of SIBI sign language flashcards on time expressions, each measuring 12.5 cm x 18 cm. The set consists of 37 cards, each featuring an illustration of a sign, the written meaning of the sign, and instructions on how to perform it. These cards are divided into four levels to determine which words should be learned first. The front of the cards features illustrations of SIBI sign language gestures for time expressions and the meanings of those gestures. There is also a level icon indicating which words should be learned first. There are also instructions on how to perform the movements

correctly. The back of the cards features the identity of SLB-BC Bina Widya, including the school logo and the school’s Instagram account. Additionally, there is the Flash Card logo and the pattern of number gestures in SIBI sign language.



Figure 17. The Final Look of “Gerak Waktu”.
Source: Author’s Documentation.

The flashcards above represent the first set of words to be learned. These include the words: “Morning”, “Afternoon”, “Evening”, “Night”, “Now”, “Tomorrow”, “The day after tomorrow”, and “Yesterday”.



Figure 18. The First Level of “Gerak Waktu”.
Source: Author’s Documentation.

The flashcards above represent the second set of words to be learned. These include the words: “Day”, “Monday”, “Tuesday”, “Wednesday”, “Thursday”, “Friday”, “Saturday”, and “Sunday”.



Figure 19. The Second Level of “Gerak Waktu”.
Source: Author’s Documentation.

The flashcards above represent the third set of words to be learned. These include the words: “Year”, “Date”, “Month”, “January”, “February”, “March”, “April”, “May”, “June”, “July”, “August”, “September”, “October”, “November”, and “December”.



Figure 20. The Third Level of “Gerak Waktu”.
Source: Author’s Documentation.

The flashcards above represent the fourth set of words that should be learned. These include the words “Less”, “More”, “Hour”, “Time”, “Minute”, and “Second”.



Figure 21. The Fourth Level of “Gerak Waktu”.
Source: Author’s Documentation.

The image above shows the packaging for the flashcards. On the front of the packaging, there is the Gerak Waktu flashcard logo, the SLB-BC Bina Widya logo, character illustrations, SIBI sign language number movement patterns, an explanation of the cards, and the school’s address. Meanwhile, on the back of the packaging, there are SIBI sign language hand movement patterns for numbers and an illustration of a wall clock.



Figure 22. The Packaging of “Gerak Waktu”.
Source: Author’s Documentation.

4.18 Supporting Media

Besides the main media, there are supporting media that serve to complement and facilitate the delivery of the main message to the target audience.



Figure 23. The Supporting Media of “Gerak Waktu”
Source: Author’s Documentation.

5 CONCLUSION

In order to improve the quality of SIBI sign language learning for deaf students, particularly in understanding the concept of time, this study focuses on the design of illustrated print educational media in the form of flashcards. The lack of effective learning materials, particularly flashcards specifically designed for time concepts, serves as the primary background for this study. The learning resources available at SLB-BC Bina Widya remain very limited; currently, the school still relies on printed and digital dictionaries that are ineffective in conveying the concept of time.

Printed dictionaries organized alphabetically and featuring unengaging images make the learning process inefficient. Meanwhile, digital dictionaries also face challenges such as limited access and a lack of interactive features. Therefore, through this study, it is hoped that flashcards can be developed that not only present information about time in a visual and

engaging manner but also enhance students’ motivation to learn and facilitate teachers in delivering lesson material.

REFERENCES

- [1] R. Kumar and S. Naaz, “Exploring the depth of elements and principles of visual design,” *ShodhKosh Journal of Visual and Performing Arts*, Dec. 2023, doi: 10.29121/shodhkosh.v4.i2ecvpamiap.2023.709.
- [2] I. Irman and H. Pranata, “The Role of Typography in Branding Strategy,” *Jurnal Ilmiah Multidisiplin*, vol. 4, no. 04, pp. 161–163, Jul. 2025, doi: 10.56127/jukim.v4i04.2243.
- [3] “Research of the Typography Design for Digital Reading on Mobile Devices,” *AHFE international*, Jan. 2023, doi: 10.54941/ahfe1003368.
- [4] Sulaiman, A. M., Oktavianto, D., & Widyastuti, D. I. (2023). *Dasar dan Penerapan Tipografi*. Mitra Cendekia Media.
- [5] R. Vadreshu, “The Importance of Illustrations in Enhancing Children’s Intelligence,” Dec. 2021, doi: 10.63771/gdj0101.003.
- [6] D. Fatmawati, M. Ulfah Hoesny, and P. Yuni Lestari, “THE DEVELOPMENT OF AN ILLUSTRATED CHILDREN’S STORYBOOK”, *ENGLISH*, vol. 18, no. 2, pp. 160–168, Sep. 2024.
- [7] W. Du, “Research on Illustration Creation of Children’s Picture Books,” *Frontiers in Art Research*, vol. 5, no. 9, pp. 76–80, 2023, doi: 10.25236/FAR.2023.050912.
- [8] Y. Alexander and I. Irfansyah, “Pengaruh Visual Storytelling Komik Asing pada Komik Indonesia Terbitan PT. Elex Media Komputindo Tahun 2004–2008,” *Wimba, Jurnal Komunikasi Visual & Multimedia*, vol. 2, no. 2, pp. 11–23, 2010.
- [9] C. K. Putri, B. G. M. K. Ichsan, and R. M. L. Ferrari, “Analisis Ilustrasi dan Narasi pada Buku Cerita Bergambar Lost and Found Karya Oliver Jeffers,” *In Search*, vol. 22, no. 2, pp. 434–446, Nov. 2023, doi: 10.37278/insearch.v22i2.804.
- [10] Y. Wakabayashi, “The Science Around Picture Books, Cartoons, Comics, and Children’s Magazines: A Historical Analysis of Ichiro Sakamoto’s Studies from the 1950s to the 1970s,” *The Science of Reading*, vol. 64, no. 1, pp. 15–28, 2023, doi: 10.19011/sor.64.1_15.
- [11] G. Erdal, ‘The Place and Importance of Character Design in Children’s Books’,

- INTERNATIONAL JOURNAL OF HUMANITIES AND ARTS RESEARCH, vol. 8, no. 4, pp. 370-382, Dec. 2023, doi: 10.5281/zenodo.10401816.
- [12] M. A. Suminto, T. H. Dewanto, and A. K. Riqqoh, "Legibility dan Readability Informasi dalam Perancangan Brosur Digital dengan Mengintegrasikan Teknologi Augmented Reality (AR)," *ANDHARUPA: Jurnal Desain Komunikasi Visual & Multimedia*, vol. 10, no. 4, pp. 596–610, 2024, doi: 10.33633/andharupa.v10i04.11190.
- [13] E. Wianto, H. Toba, and M. Malinda, "Learners' Perception of Scientific Text Layouts Design Using Eye-Tracking," *Journal of Eye Movement Research*, vol. 18, no. 3, Art. no. 22, 2025, doi: 10.3390/jemr18030022.
- [14] A. Priangsari and Kasiyan, "Portrait of Historical Figures in Engraving Graphic Printing Techniques as A Means of Visual Communication to Spread National Identity," *Social Science and Humanities Journal*, vol. 9, no. 1, 2025.
- [15] K. Trojnar and K. Tereszkievicz, "Evolution of Printing Techniques Dedicated to People with Visual Impairments: From Gutenberg to UV Printing," *Communications of the IBIMA*, vol. 2025, Art. ID 972880, 2025.
- [16] Y. Rahman, D. S. Pratiwi, and C. Prihatini, "Flashcard as an Instructional Media Towards Students' Reading Comprehension," *ELT-Lectura*, vol. 10, no. 2, pp. 140–149, 2023, doi: 10.31849/elt-lectura.v10i2.15171.
- [17] M. Lestari and T. Nopriana, "Development of Flashcard Learning Media for Fourth Grade Science and Social Studies Subject," *Journal Socio Humanities Review*, vol. 5, no. 1, pp. 1–9, 2025, doi: 10.33603/jshr.v5i1.10324.
- [18] E. Hotimah, "Penggunaan Media Flashcard dalam Meningkatkan Kemampuan Siswa pada Pembelajaran Kosakata Bahasa Inggris Kelas II MI Ar-Rochman Samarang Garut," *Jurnal Pendidikan Universitas Garut*, vol. 4, no. 1, p. 11, 2010.
- [19] N. Sari and K. Z. Putro, "Assistance and Learning Strategies for Deaf Children," *joyced*, vol. 1, no. 1, pp. 39–52, Jun. 2021, doi: 10.14421/joyced.2021.11-05.
- [20] S. R. Sander and A. H. Dilva, "Penggunaan Media Visual dalam Pembelajaran Musik bagi Peserta Didik Disabilitas Pendengaran di Lingkungan Inklusif," *mused*, vol. 1, no. 2, pp. 68–83, May 2025.
- [21] Putu Rani Pratiwi, Made Hery Santosa, and I Ketut Trika Adi Ana, "The Use Of Flashcard Media With Sign Language In Improving English Vocabulary Of Deaf Students In Grade VI At SD Negeri 2 Bengkulu," *JUPENSI*, vol. 5, no. 2, pp. 530–552, Jul. 2025.
- [22] Marry Damayanti, Subanji, and W. Dasna, "The Influence of The Use of Visual and Flashcard Media in Language Learning on Increasing Student Achievement," *j. pendidik. n.a sekol. dasar.*, vol. 9, no. 2, Oct. 2025.
- [23] R. R. Agustin, H. Maulana, and E. P. Mandyartha, "DETECTION OF ACTIONS BISINDO (INDONESIAN SIGN LANGUAGE) INTO TEXT-TO-SPEECH USING LONG SHORT-TERM MEMORY WITH MEDIAPIPE HOLISTICS," *J. Tek. Inform. (JUTIF)*, vol. 5, no. 4, pp. 1051–1061, Nov. 2023.
- [24] W. Utomo, Y. Suhandi, H. Ar-Rasyid, and A. Dharmalau, "Indonesian Language Sign Detection using Mediapipe with Long Short-Term Memory (LSTM) Algorithm ", *JIWE*, vol. 4, no. 3, pp. 245–258, Oct. 2025.
- [25] M. Sari and E. R. Jamzuri, "Hand Sign Recognition of Indonesian Sign Language System SIBI Using Inception V3 Image Embedding and Random Forest", *J. RESTI (Rekayasa Sist. Teknol. Inf.)*, vol. 9, no. 2, pp. 258 - 265, Mar. 2025.
- [26] M. V. . Amelia, W. S. J. . Saputra, K. M. . Hindrayani, and P. A. . Riyantoko, Trans., "Indonesian Sign Language (BISINDO) Classification Using Xception Transfer Learning Architecture", *International Journal of Advances in Data and Information Systems*, vol. 6, no. 2, pp. 320–331, Jun. 2025, doi: 10.59395/ijadis.v6i2.1392.
- [27] B. Bado, *Model Pendekatan Kualitatif: Telaah dalam Metode Penelitian Ilmiah*. Makassar, Indonesia: Tahta Media Group, 2022.
- [28] Z. M. Mohamed, A. H. A. Majid, and Norsiah, *Tapping New Possibilities in Accounting Research: Qualitative Research in Accounting – Malaysian Cases*. Malaysia: Universiti Kebangsaan Malaysia, Jan. 2010.