



## The Use of Flashcards in Learning to Read Braille for Students with Visual Impairments

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### **Abstract**

The ability to read is an important thing to note, because if someone has not been able to unite letters, words and sentences in reading then the message contained in a reading cannot be conveyed properly, including for students with visual impairments. This study aims to determine the use of Braille flashcard media in learning to read braille for students with visual impairments. The implementation of braille reading learning for students with visual impairments using Braille Flashcard media also uses direct practice methods and is assisted by task analysis. The implementation of braille reading learning is carried out repeatedly and continuously at school and at home. The subject in this study has the initials AG is 7 years old and has visual developmental barriers and is totally blind. This research uses a qualitative approach with a case study. Data collection techniques with interviews, observation and documentation. Based on the discussion of the implementation of braille reading with Flashcard Braille media, it shows that AG is able to do readiness in reading Braille including sitting position when reading braille, hand position when reading braille, paper position when reading, hand movements when reading braille, fingering, identification of letters or words read. The use of Flashcard Braille media can help improve AG's ability to understand braille letters, finger sensitivity when reading Braille and fluency in reading Braille.

**Keywords:** *Braille Reading; Flashcards; Braille*

### **Introduction**

The information gap experienced by the blind is due to limitations in the visual apparatus so that the capacity for information acquisition in the blind is the lack of literature that can be accessed by the blind, such as braille or digital forms, Activities in the learning process, blind children experience obstacles according to the level of blindness. So that students are easier to receive lessons, learning modifications are needed to improve their ability to receive material during the learning process. Blind children learn to read and write Braille at the primary level (Rendy ross Handoyo: 2022). They need to learn the skills to understand the symbols in Braille reading texts as well as the words spoken by others, as the loss of visual sense results in such consequences.

Reading is one of the processes carried out and used by readers to receive activity messages in the form of spelling or pronouncing a writing that is assembled from letters into a word and a sentence. So, if a child has difficulty in recognizing letters, it is certain that the child will have difficulty in reading and it will affect his academics. Ability / competence in reading is an important thing to note, because if someone has not been able to unite letters, words and sentences in reading, it can be concluded that the message contained in a reading cannot be conveyed properly. In special schools, especially schools for blind children, in the lower grades will be given material to recognize braille alphabets. Braille letters, embossed letters created by Louis Braille. Braille letters are formed from a combination of six dots that form symbols of lay letters so that they can be read by the blind. Braille letters consist of two rows of three dots, Louis (2011) in Plummer (2013). The braille letters are arranged based on six raised dots with the position of dots 1, 2, 3 (vertical), 1, 4 (horizontal), 4, 5, 6 (vertical). So that the pattern forms like dominoes and the points are named 1, 2, 3, 4, 5, and 6.

The writing and printing system (based on the Latin alphabet) for the blind is a code consisting of six points of various combinations that are highlighted on paper so that they can be touched. In mastering braille letters there are several that must be considered including: Understanding the location of the point, Sensitivity to touch, Understanding the position of the line. This ability is difficult to know. For this reason, special media is needed for learning in order to meet the needs of teaching and learning at school. The reality during the learning process of reading Braille, often blind children have difficulty in remembering the location of the points on the Braille letters so that they often forget the Braille alphabet. In addition, the types of media used in Braille learning at school are less varied and cannot be taken home. From observations made of AG who is totally blind, the initial condition is that the child cannot read and write Braille letters. According to Mais (2016, p. 9), a learning media is a medium that is used as a messenger between teachers and students in the learning process to achieve learning goals.

Here the important role of student enthusiasm in recognizing letters and words is needed to provoke a good response in reading by increasing vocabulary. The use of flashcard media is in accordance with the needs and adjusts to the ability of students to be applied in increasing interest in reading and training the sense of touch of blind children. According to "Flashcards are small cards containing images, text, or symbols that enhance or direct students to something related to the image. Flashcards are usually  $8 \times 12$  cm in size, or can be adjusted to the size of the class at hand". Braille flashcards are one of the solutions in carrying out learning to read braille, where with this media students are able to memorize vocabulary as a form of response to every stimulus they get in the cards they touch. Because this media is very helpful in implementing the Braille reading learning process, this flashcard media was chosen as a learning media for Braille reading competence, learning by using flashcards is more effective than instructional conditions that are only auditory (Mackenzie E. Savaiano, Donald L. Compton, Deborah D. Hatton, and Blair P. Lloyd : 2016) Because this media can help strengthen the theory of flashcard media applied in words found on objects in the surrounding environment. In addition to getting the theory of alphabets, children can also directly train their senses.

Based on this understanding, it can be understood that media is a tool used in the learning process that can help teachers channel messages containing learning materials to students who can stimulate the thoughts, feelings, and willingness of students to understand learning materials, in order to achieve the goals of a teaching and learning process. Flashcards are one type of media in the form of small cards containing images, text, or symbols that remind or direct students to something related to the image. The size of flashcards can be adjusted to the size of the class at hand. Usually the paper used in making flashcards is stiff and thick paper so that it is not easily damaged when used by students, Flashcards are suitable for small study groups, so researchers chose this Braille Flashcard media to help the learning process of braille reading.

This study aims to determine the use of Braille flashcard media in learning to read braille for students with visual impairments. The use of flashcard media helps learners with visual impairments can

recognize the concept of letters, syllables, words and sentences in beginning reading, through the use of flashcard media.

### **Research Methods**

This research uses a qualitative approach with a case study research design. The selection of a case study is because the researcher wants to ask about how the process of implementation events and why the event occurred so that the methods, strategies, techniques and media used in learning to read Braille for students with visual impairments can be known. Case studies are empirical investigations that investigate contemporary phenomena in real-life contexts made the notion of case study for architecture research by changing it to an empirical inquiry that investigates a phenomenon or setting. Based on efforts to achieve the research objectives, the researcher must get a detailed and complete picture of the implementation of learning to read braille for blind children using Flshcard Braille media.

According to Yin (2009), the case study research method is an appropriate strategy to use in research that uses how or why research questions, little time the researcher has to control the events under study, and the focus of the research is a contemporary phenomenon, to track contemporary events. In the case study method, researchers focus on the design and implementation of research. The case study research method can be divided into 3 (three) types, namely: Explanatory, Exploratory and Descriptive. In this study, researchers tried to capture real events or current events to see the meaning of these events by first collecting data. Data collection through interview, observation, documentation and test methods. (Ishartiwi, Sukinah, Dewi Barotut Taqiyah, 2023). Documentation was obtained through assessment results, daily notes during the implementation of braille reading learning with flashcards media.

The research subject amounted to one child aged 7 years. Based on the results of interviews with parents, information was obtained that AG had been blind since birth with a total blindness category. In addition to the results of family interviews and initial observations, AG has difficulty with sensory sensitivity which results in difficulty in reading Braille, but AG has the strength to memorize, AG's memorization is quite strong, such as memorizing short letters, audio materials and memorizing some song lyrics that he likes, AG also likes to sing. Data collection techniques in this study consisted of observation, interviews and documentation. The observation technique by observing the activities of the implementation of the braille reading learning process takes place, the interview technique is used to obtain information on the development and obstacles experienced by AG and documentation related to documents during the Braille reading learning process with Flashcard media takes place, including AG's biodata, examination history, Braille reading learning process activity sheets, photos, videos.

The data analysis technique in this research is descriptive qualitative. The analysis starts from documents about AG's biodata and initial ability in learning to read Braille, the results of interviews and observations. The implementation of the research began at the assessment stage to find out AG's strengths and obstacles in Braille reading ability. At the assessment stage, a grid instrument is used to determine the initial ability in Braille reading ability, then for observation of learning to read Braille using Flashcard Braille media, 8 meetings are held, then analysis and reflection on learning to read Braille are carried out.

### **Discussion and Results**

The implementation of the Braille reading learning process using Flashcard Brille media is carried out at school, starting with assessing students with visual impairments first. The assessment is carried out to determine the strengths and weaknesses of students so that it can be used to plan the program to be provided according to the characteristics of each individual. This is done considering that students with visual impairments in this case AG have different abilities, needs and characteristics. The assessment includes 2 parts, the first is an overall diagnostic assessment of AG's ability in the special

needs program subject of Social Mobility and Communication Orientation Development (OMSK) and the second is the initial ability to read and write Braille. The results of the assessment are as follows:

Table 1. Results of Diagnostic Assessment of OMSK Development Ability

No.	Aspect/Competency	Ability
1.	Orientation and Mobility Skills Assessment  Competency Body image	Orientation and mobility skills on body image competencies: Children's readiness to learn OMSK is shown by being able to make head and neck movements, make finger and hand movements, make hip, knee and foot movements, while for other activities they still need teacher / companion assistance.
2.	Assessment of Orientation and Mobility Skills  Competencies: Motor skills, space and environmental awareness.	Orientation and mobility abilities in motor skills competencies, space and environmental awareness: Children's readiness to participate in special programs for OMSK development. The child needs strengthening in balance such as airplane movements, strengthening in distinguishing the shapes of circles, triangles, rectangles, distinguishing the relationship between two objects, showing the location of odors and responding to odors.
3.	Assessment of Orientation and Mobility Skills  Competencie: Principles and components orientation skills	Orientation and mobility skills on principle competencies and components of orientation skills: Child's readiness to participate in special program for OMSK development. Child needs reinforcement traveling with self-protection techniques in the school environment.
4.	Social Development Skills Assessment  Competence: Personal Health	Social development abilities in personal health competencies are as follows: Children's readiness to take part in learning special programs for the development of OMSK, Children need reinforcement in the ability to use deodorant, wear shoes and sandals, cut nails, wash hair and comb, make up and children need reinforcement in the ability to make and maintain clothes.
5.	Assessment of Communication skills Braille reading and communication competency	Communication development skills in braille reading and writing and communication competencies are as follows: Children's readiness to participate in learning special programs for OMSK development, children are good enough in communication competence, but still need strengthening and deepening in Braille reading and writing readiness and communication, especially in the ability to read Braille.

Based on the results of the assessment of AG's OMSK Development abilities in table 1 consisting of 5 aspects / competencies, students need reinforcement in each of their competencies, reinforcement can be given during learning, can be in the form of actions and motivation to students to develop abilities and

improve abilities in each competency. For communication skills and self-adjustment, children are good and able to follow according to environmental conditions. Blind children need higher initiative to understand information from the surrounding environment through the sense of touch even though it is difficult to do because they have three aspects of limitations.

Table 2: Assessment in Braille Reading and Writing Ability AG

No.	Aspect/Competency	Ability	Description
1.	Braille Reading and Writing	Communication development skills in braille reading and writing competencies: <ol style="list-style-type: none"> <li>a. The child is able to write braille using reglets.</li> <li>b. The child is able to write and understand the concept of braille writing when writing and reading.</li> <li>c. The student's sitting position in braille reading and writing activities is still changing.</li> <li>d. The ability to feel/tactile is still lacking.</li> <li>e. Children are still confused in distinguishing per syllable, word and sentence when doing Braille reading.</li> <li>f. The child is not yet able to read braille fluently, starting from syllables, words and sentences.</li> </ol>	Totally blind

Based on the results of the assessment of AG's Braille reading and writing skills in table 2, students have a good ability to write Braille and understand the concepts in Braille writing. However, AG still has difficulty in reading Braille. The introduction of Braille letters is very important in the development of reading skills in children. In learning blind children, a medium is needed that suits their needs, namely using Braille letters or letters of various sizes tailored to each child's condition. (Dina Alifah, Asrorul Mais, Dedy Ariyanto: 2022)

### Braille Flashcard Media

One of the teacher's strategies to create interesting learning is by using media. Media is a prop or intermediary that can be used to convey messages or information. The use of media in the learning process can make it easier for teachers to convey material and learning becomes more effective and efficient (Dzni Azhima, R. Sri Martini Meilanie, Agung Purwanto (2021). In addition, the use of media in learning activities can help children understand the material easily and increase children's interest in learning so that it makes children more active. The use of Flashcards is effective for increasing students' vocabulary knowledge (Rudi Wibowo Aji, Alief: 2019) Noor Farida Flashcard Media is made with a size of 17 cm x 12 cm, practical to be carried by students with visual impairments. Braille flashcards contain Braille dots and consist of several series, starting from the introduction of letters, syllables, words, and sentences.

The arrangement in the structure, starting with the spacing that is tenuous first, when the blind learners are able to read, is made tighter. Flashcard media is considered as a medium that causes students' pleasure and interest in braille learning, because flashcards are a form of learning media in the form of picture cards that students like and can be presented in the form of games. The advantages of flashcard media include: easy to carry, practical, easy to remember and fun. In addition, flashcard media can help the right brain's ability to remember letter symbols in braille, so that it can help students improve their

braille reading skills. Flashcard media is a form of visual media in the form of picture cards. This card is used by being shown to the child quickly. As quoted by (Mansyur, 2018) that flashcards are picture cards equipped with words. For learning to read Braille for students with visual impairments the flashcards are in the form of Braille dots.

## Implementation of the Braille Reading Learning Process

### Using Flashcards

The implementation of the learning process using Braille flashcards is carried out 8 times a meeting and is assisted by a tax analysis / sequence of assignments in learning to read braille. The implementation of activities starts from easy activities first, from feeling syllables, to reading katta from an easy stage to a more difficult stage followed by providing positive reinforcement that can increase AG's motivation in his learning spirit. The following is the implementation of the Braille reading learning process using flashcards:

Table 3. Implementation of Braille Reading Learning Process with Flashcards

No.	Aspect	Learning Activity Materials	Objective
1.	Sitting position when reading braille	a. Adjust the position of chairs and tables b. Set the distance between the table and the chair c. Back upright position d. The soles of the feet tread	Learners are able to position their seat when reading braille in an appropriate and comfortable position for Brille reading readiness.
2.	Hand position when reading braille	a. Both hands are on the paper to be read b. Hands face down c. Putting the hand at the ready to read braille letters	Peserta didik mampu memposisikan tangan dengan benar saat membaca braille dengan posisi yang sesuai dan nyaman untuk kesiapan membaca Brille
3.	Paper position while reading	a. The paper is on the desk of the student in front of it b. Feeling the paper containing the braille writing to make sure it is not upside down c. Positioning the paper accordingly and comfortably with the student's sitting position	Learners are able to position the paper correctly when reading braille.
4.	Hand movements when reading braille using flashcards	a. Right hand to finger the braille letters b. The left hand is at the left end of the first line of paper (for those who have read fluent sentences) c. Fingering the braille letters with the index finger of the right hand or using the finger that is most sensitive to fingering the braille letters	Learners are able to move their hands when reading Braille correctly.

No.	Aspect	Learning Activity Materials	Objective
5.	Feeling/identifying letters or words read with flashcards	a. Feeling/identifying reading braille letters b. For beginners, it is important to make braille reading cards / braille flashcards with more distance so that novice blind students can easily identify braille letters. c. Read braille letters smoothly d. Reading syllables and words e. Reading simple sentences	Learners are able to feel and read braille using flashcards fluently starting from letters, syllables, and words and simple sentences.

From the results of the learning process of reading braille using flashcards, it has shown progress in the ability to read Braille. Here's the learning process: Learning activities begin with praying together, students earnestly respond to greetings and pray a sign of gratitude for the grace of God Almighty next Learners listen to information from the teacher about the competencies and learning objectives that will be achieved from learning to read Braille and its benefits in everyday life. Learners respond to questions from the teacher related to previous learning about the material presented as an apprehension activity carried out by the teacher. Learners respond actively to information about learning materials to be learned including methods and media, learning steps, and learning assessments. The teacher asks questions to learners by giving them time to think and answer questions for 5-10 minutes to think for themselves to answer questions verbally from the teacher.

Core activities, learning core activities of reading Braille using Flashcard braille media. In this learning process, the teacher first designs an Individualized Learning Program Plan, and has compiled a tax analysis in Braille reading material using Braille flashcard media as stated in table 3. Starting from the sitting position when reading Braille, the position of the hands when reading Braille, the position of the paper when reading, hand movements when reading Braille, fingering / identification of letters or words read. In learning to read it starts with a flashcard containing letters, per letter is made more tenuous so that it has room in the sensitivity of touching for example the letters a, i, e, u, e o, and consonant letters. Then from reading letters continue to read syllables, such as ma-ma, mi-mi, me-ja, mu-tu. Reading words such as mama, table, face, ball, bali, sponge, book, papa, nail, cheek, then reading sentences consisting of 2 words or 3 words such as "new shoes" "blue table" "mama eats sponge" papa opens a book".

Closing activities, in closing activities students and teachers reflect, conclude on the learning material that has been carried out. The teacher straightens and reinforces the answers and activities of students that are not yet appropriate and provides motivation and follow-up plan activities (RTL) at home with parental guidance. Learners express their feelings after following Braille reading learning using flashcard media. Learning activities end with praying together and recognition by the teacher.

Techniques and strategies for implementing the Braille reading learning process are carried out at school and at home with their parents, by applying habits and continuous and repeated learning. It starts with reading huru, syllables, words and simple sentences using flashcards. Braille was developed in the early 19th century as a method of enabling blind people to read (Glen Dobbs, Kevin Miller: 2016). AG's development began to show progress by being able to read syllables, read words and read sentences using flashcards, whose media can be brought at home accompanied by his parents in braille reading exercises at home. AG's persistence and enthusiasm show that AG is able to understand and be able to read braille using flashcards.

The results obtained from learning to read Braille using flashcards are that the implementation of learning becomes more focused because at the beginning the teacher explains the learning objectives that

must be achieved by students and learning materials first, students are more courageous and confident to ask the teacher about reading per letter, per syllable, per word and simple sentences, students are able to think for themselves in learning, find information on the material and can learn to focus more on feeling Braille dots, learners are trained in feeling Braille letters in the form of per huru, per syllable, per word and simple sentences quickly, learners can think quickly and purposefully because feeling can focus more on the arrangement of letters, syllable arrangement, word arrangement, and word card sentences in the Flashcard, because in Flashcards letters or arrangements per syllable, per word are made rarely first then if they are smoothly made tighter.

### **Conclusion and Suggestions**

Based on the results and detention of reading Braille using Flashcards at AG, 8 meetings were held and carried out repeatedly to train the sensitivity of the fingers and hands of students in reading braille and the concept of objects around students and carried out gradually from easy to difficult, mastery of reading Braille, and writing can be done gradually, step by step (Dewi Juwita Susanti, Sari Rudiati: 2019). From the implementation of the learning process, it has motivated students to be enthusiastic about learning and increase their sensitivity to feel and read Braille fluently using flashcard media (Tina S. Herzberg, L. Penny Rosenblum, and Mary E. Robbins: 2017). Learners are able to carry out learning practices correctly, including sitting position when reading braille, hand position when reading Braille, paper position when reading, hand movements when reading Braille, and fingering / identification of letters or words read.

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