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Braille Reading and Writing Skills of Students at Sebeta Primary School for the Blind

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Addis Ababa, Ethiopia

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ACRONYMS

BR: Braille Reading

BW: Braille Writing

CPD: Continuous Professional Development

SNE: Special Needs Education

WBU: World Blind Union

ABSTRACT

Braille is a system of touch reading and writing that is the most important tool and has power to change significantly the history of blindness. Originally, Braille was used by soldiers that called night reading. But nowadays, Braille reading and writing skills have become crucial in schools for the blind and others too. This study aimed at assessing students' Braille Reading and Braille writing skills and identified challenges hindering those skills. The study considered students (grades 1 to 4), Braille teachers, school principals and SNE resource center coordinator at Sebeta School for the blind in the academic year of 2019/2020. Using purposive sampling, 3 Braille teachers, 2 school principals and 1 SNE resource center coordinator were selected. After that from the populations of students of grades 1 to 4 were purposively selected, 69 samples of students were selected by systematic sampling. Also, 2 principals, 3 teachers and 1 SNE resource center coordinator were selected purposively. The design for the study was a descriptive survey type guided by three research questions. The research questions were answered using qualitative and quantitative while any significant differences in students Braille skills were tested using independent samples t-test from the data collected through Braille reading and writing test results of students. Although statistically significant difference was detected in reading Braille in English and Afan Oromo, the result showed that Students' BR and BW skills appeared poor and their reading rate seemed very slow. Regarding BW, students' skills were found to be poor both in Afan Oromo and English. The responses obtained from principals' interview and students' FGD indicated the same finding as the test results. Challenges to BR and BW skills of students were found to be unarranged sittings and desks in classrooms, uncomfortable arm chairs in the classrooms, inadequate resources, lecture method delivery approach, uncomfortable classroom situation, students' lack of awareness and support in BR and BW activities, disorganized SNE resource center and learners' lack of experiences in using their fingers during BR. Also, lack of Braille skilled teachers and schools principals, school promotion policy were other challenges that contributed to the poor Braille skills of students. In general, there were BR and BW skill gaps in the school. To solve the problems recommendation were given: To enhance BR and writing skills, schools need to provide more skill trainings, sufficient learning support, educational resources, teaching aids, organized classrooms and other required physical facilities in schools for the Blind. SNE teachers training colleges and universities need to give a great emphasis on Braille skills when training primary school teachers and principals. It was also recommended that BR and BW skills need to be included in teachers' CPD in schools for the blind. Further, it would be better if schools for the blind provide continuous service Braille trainings to Braille teachers.

CHAPTER 1

1. INTRODUCTION

1.1 Background of the Study

More than 90% of the world's 161 million blind and visually impaired people live in developing communities. Despite the importance of literacy to employment, social well-being, and health, the literacy rate of this population is estimated at below 3% (N. Kalra, 2008).

According to (WBU, 2003), literacy is a human right. The United Nation Convention on the Rights of Persons with Disabilities obviously mentioned the need to recognize Braille as the means of communication and social inclusion for blind persons. Therefore, World Blind Union re-affirms that Braille is critical and must be accessible worldwide. The most recent version of "World Braille Usage, Third Edition" (2013), it is presently being used in more than a hundred and forty countries. Additionally to those, to boost opportunities of blind peoples all governments on the globe ought to offer a lot of thought to reinforce Braille accomplishment in faculties as a theme for the blind. Absence of Braille accomplishment could have an effect on self-achievement, skills, talents of persons with visual impairments and that they could lose employment opportunities.

From all world country, France is mostly acknowledged by blind persons for having a citizen Louis Braille who almost two hundred years ago invented the Braille font and United Nation agency nearly two hundred years alone fictional the Braille font. It absolutely was the first time that blind persons were ready to really scan, write and communicate among themselves. This was a liberating means for the blind to be told to use a system that was tailored for his or her specific use by sense of touch. These days through exploitation technology in associate degree innovative means will cause boosting and imposing the assembly, use and circulation of Braille through high speed embossers, note-takers, Braille displays etc (Mutuku T. , 2019).

Also N. Kalra, (2008), for the blind people literacy in Braille is often the key to independence in home and at work. It is said that the system has "liberated a whole class of people from a

condition of illiteracy and dependency and has given them the means for self-fulfillment and enrichment."

According to Yibeltal Braille is one of the greatest significant tools for impartiality for people who are blind. This alternative literacy system, having accredited so many to free themselves from unnecessary dependence on others, can be said to have significantly changed the history of blindness. Inappropriately, in Ethiopia and in many other countries, several people do not enjoy the great benefits of Braille. Ironically, the facts for this failure are caused by poverty for most possible users, and by technological wealth for others. Low-income countries have very small Braille generating tools and consequently a little supply of Braille materials and personal Braille-writing tools. Too habitually, those who live in technologically developed countries tend to avoid using Braille in the wrong belief that audio technology is a better choice (Yibeltal K. , 2012).

So, as Yibeltal point of view Braille literacy is associated with higher levels of independence, confidence, and self-esteem than using other medium of instruction. (Johnson N. , 2015), for individuals with total loss of sight, Braille alone suggests complete command of written language. Given the relationship among low literacy, school failure, and poor adult outcomes, identifying the most effective methods of Braille reading instruction is critical.

According to Yibeltal (2012), Braille was introduced to Ethiopia after about a century since its invention. Even though the difference of sources in how exactly it began, it is not in dispute that the history of Braille in Ethiopia initiated in 1924. It has been orally reported that priest Gidada Solan was the first Braille user in Ethiopia. Sebeta School for the blind has a long history as it is the first residential school for the blind, which was opened in 1952 and following the formation of the first governmental school for the blind, in 1957. Concerning the practical importance of Braille in Ethiopia today, Yibeltal added that despite its nearly 90 years of history in Ethiopia, it is frustrating to see that Braille is not yet widely used in daily life of most blind people. The potential users of Braille these days embrace elementary and high school blind student's schools, and universities graduates, clear-sighted special desires education academics.

But, according to Radojichikj, (2015) Braille literacy skill is critical importance to the success of independence and employability of those who are blind. The reason for low practice of Braille

includes attitude, lack of resource, discomfort about social reaction, inconvenience and illiteracy or poor Braille skill. Moreover, it was depicted that there is an opinion that new technology is coming to replace Braille and do not see the need for Braille. Thus, this tendency of withdrawing from practicing Braille among the blind is due to curiosity about the technology and dissatisfaction with the general Braille service. On the other hand, (Frieman, 2004) discussed that technology does not guarantee literacy. This shows technological devices need to be used to enhance Braille and no longer to change it. This point of view encourages that all blind students who have access to other technology also need knowledge of Braille skills in order for them to reach their most level of literacy and self-sufficiency.

It was, consequently, vital to conduct a study in order to identify the Braille reading and writing skills of totally blind students at Sebeta School for the Blind. Additionally, examining the existing practices and challenges of Braille reading and writing is also pertinent.

1.2. Statement of the Problem

As it is discussed in the background, Braille is introduced to Ethiopia almost one century ago. Through the century, different nongovernmental and governmental schools for the blind were opened and it is obvious that those schools have been using Braille skills as the medium of literacy. It's obvious that Braille skills provision has been mandatory as it is the main means of learning for all blind learners. On this regard, Sebeta School for the blind is well-known school in Ethiopia and has long history. Many famous blind people in the country attended this school. Considering all these, the researcher selected this school to study Braille reading and writing skills of blind students.

The researcher has been working in Sebeta Special Needs Education Teachers College where Sebeta School for the Blind is found. As a result, the researcher has many chances of discussing about students' Braille reading and writing skills with teachers in Sebeta School for the blind. The responses were disappointing that students' Braille reading and writing skills were very low. Furthermore, by the invitation of Braille teachers in the school, the researcher made repeated observations regarding Braille reading and writing skills of visually impaired students of Sebeta School for the Blind. From these observations, it was found that students' Braille reading and writing skills appeared to be poor. Additionally, some of the students of this school join teacher

Education College where the researcher has been working as a resource room head. There, he has been observing problems that the students face regarding BR and BW skills. This showed that there are students who are not able to read Braille even when they leave the boarding school completing 8th grade. To the knowledge of the researcher, no research has been done on Braille reading and braille writing skills in this school. So, the researcher gave the priority to study the extent of these skills. So, he worked carefully to identify the BR and BW skills of the blind students, wanted to see the accessibility they have in learning Braille literacy skills, how the school and teachers gave attention to those skills and facilitating practice in day to day life of the learners. Based up on this, the study attempted to seek answers to the following basic questions.

1. What is the level of practices of Braille reading skills of blind students at Sebeta School for the blind?
2. What is the extent of the Braille writing skills of blind students at Sebeta School for the blind?
3. What are the challenges of Braille reading skills and Braille writing skills of blind students?

1.3. Objectives of the Study

1.3.1. General Objective of the Study

The main objective of this study was to investigate the Braille reading and writing skills of students in Sebeta primary school for the blind.

1.3.2. Specific Objectives of the Study

The specific goals of the study were to:

1. assess the level of practices of Braille reading skills of blind students at Sebeta School for the blind.
2. investigate the extent of Braille writing skills of blind students at Sebeta School for the blind.
3. identify the challenges of Braille reading skills and writing skills of blind students.

1.4. Significance of the Study

The study will be expected to be beneficial for blind students who are learning Braille as their medium of literacy skills, for they will be capable to pinpoint their weaknesses and improve on them, so as to read and write effectively. It has advantages to teachers who teach Braille for they will be able to aware and know the weaknesses of their students to change their instructional techniques in order to enhance effective teaching of Braille literacy capabilities in school. The

result of the study will be really helpful to educational officers and itinerant teachers who monitor and evaluate the learning of Braille in the school. The Ministry of Education will benefit from the find out about when formulating and imposing instructional policies related to Braille in primary schools. Furthermore, the study benefits Sebeta School for the blind and other stakeholders when creating curriculum and curriculum support materials such as teaching aids. Also, the study is expected to benefit non-governmental organizations (NGOs) interested to work with schools for the blind. The researcher will be beneficial to develop his profession. Finally, it will be an initial study for the other researchers.

1.5. Scope of the Study

This study was delimited in examining Braille reading and Braille writing skills of totally blind students in Sebeta primary School for the blind in Oromia region, as it is difficult to include all other similar residential schools in Ethiopia like Bako, Shashemene, Mekelle and Wolita School for the blind. The study was also delimited in identifying challenges that hinder BR and BW skills of totally Blind students in Sebeta Primary school for the Blind. On the other hand, the study did not include partially sighted students. Since all types of problems might not be manageable at once, the study focused on challenges such as SNE resources and teaching aids, teachers' experiences in teaching Braille skills, physical environments in classrooms and school policies and existing school practices in teaching BR and BW skills to totally blind students.

1.6. Limitation of the Study

The study has some limitations. Absence of access to research done in the study area especially on Braille literacy skills for reviewing might be one limitations of the study. Additionally, Braille teachers' and principals' lack of experiences and skills in methods of teaching Braille Literacy while responding to the interviews might also affect the findings of this study. Furthermore, the results of this study might not stand for all areas in Ethiopia. The Braille literacy skills of total blind students in Sebeta School for the blind may not be the same with Braille literacy skills of total blind people in other parts of Ethiopia.

1.7. Definition of Terms

Braille: is a system of reading and writing by touch used by the blind. It consists of arrangements of dots which make up letters of the alphabet, numbers, and punctuation marks. (Winter, 1996)

Blind: According to educationally blind definition blind students are who have little or no functional vision for learning and primarily use Braille, audio and tactile aids in their learning.

Braille Literacy skill: is the ability to use Braille reading and writing. It is the foundation upon which Blind peoples are able to interact with the world, educate themselves, and thus contribute to society as well as their own well-being.

Primary school: is an institution where children receive the first stage of academic learning known as elementary or primary education. In this research primary school means consists of two cycles: those are grade one to grade four and grade five to grade eight.

CHAPTER 2

2. REVIEW OF RELATED LITERATURE

2.1. Historical Development of Braille

Braille is a system of reading and writing by touch used by the blind. It consists of arrangements of dots which make up letters of the alphabet, numbers, and punctuation marks (winter, 1996). The Origination of Braille was used by soldiers that called night reading. This night reading Braille invented by Charles Barbier and consists of twelve dots arranged in two columns of six dots each. According to (Vera, 2011) Barbier originally created a code of raised dots and dashes as a way to allow soldiers to write and read messages at night without using a light that might give away to their positions. The problem with the military code was that the human fingertip could not feel all the dots with one touch. Therefore, Luice Braille invented the Braille that contains six dots arranged in two columns of three dots each and available for blind people at 19 century.

2.2. The Uses of Braille for the Blind

Braille is a system of touch reading and writing that is the most important tool and have power to change significantly the history of blindness. California Department of Education (CDE, 2006) stated that, Braille literacy is the foundation of all education for functionally blind students. It's the obvious method of reading and writing for people who are blind. Even as speech output technology has improved, computer users throughout the world who are blind have found that the ability to use Braille input and output devices, to refer to hard copy and refreshable Braille products, and to read and write in a tactile medium has enhanced their professional and personal lives. So, "as long as print is the primary literacy medium of sighted people, Braille will be the primary literacy medium for blind people" (Wettenstein, 1994).

According to (Abeya, 2014) numerous people recognize that the Braille code is a means for blind people to be literate, but few know why it is called the Braille code or what led to its invention and its acceptance today. Many years ago, when the types of alphabet were first used by those with sight, it was recognized that blind people would not be able to take part in the normal life of

their community. That acceptance constituted the reason a suitable code for reading and writing was not available until relatively recently the Lorimer's invention.

After Lorimer's invention the six-dot Braille which is more available tactile system for blind peoples was invented by Louis Braille in the 19th century. This Braille increased the blind person confidence which enabled them to read and write independently. This invention opened the door for literacy, because the benefits of literacy are many and fundamental for the progress of people in every aspect: to facilitate learning and independence, political, cultural, social, and economic. Hence, the importance of literacy and literate society has been stated through many international documents and recognized as a right. Literacy skills are important to knowledgeable decision-making, personal enabling, and active contribution in the local and global social community and means to succeeding ones full life potential (V. Penava, 2017).

Generally, audio materials and magnification devices have their roles in the lives of blind peoples. However, without the equivalent to a sighted person's pen and paper, a child who is blind falls behind. A blind student with Braille literacy skills is better able to compete and succeed in the real world. Because, Braille is the most critical and powerful literacy tool in the life of a person who is functionally blind (Ryles, 1996).

2.3. Teaching Braille Literacy

Braille instruction for the student who is blind is equivalent to literacy instruction for the sighted student. The teaching of Braille is not the teaching of some exotic code or language or extracurricular class (California Department of Education, 2006). According to (Serah W. N, 2014) children learn the skill in different ways, depending upon their inborn abilities, motivation, interests and experiences. For that reason, every teacher must have knowledge of the major methods for teaching Braille skills and build their future on a good base. Because, teaching Braille to young children with visual impairments is more than just teaching them the meaning of the Braille symbols. Young children with visual impairments learn to read and write using Braille just as young sighted children learn to read and write using print. Both learn the meanings of symbolic representations (Braille and print characters) and how those representations form words, sentences, paragraphs etc. Those communicate a unique message when put together. With some modifications many teaching methods which work for sighted children also possibly

for children with visual impairments. So choosing the combination of methods that appropriate to meet the learner's needs was critical to teach literacy.

Concerning to teach reading, some scholars suggested that all children require early experiences to provide a foundation for understanding what they read. For reading, the child must be able to relate what he or she reads to previous experiences to be meaningful. The children may read and write words correctly without direct experiences, but they may not understand truly what reading and writing about. The incidental learning and opportunities to gain access to naturally occurring experiences in the environment may hinder by visual impairment. Blind students need direct hands on practice with basic concepts (such as shape, size, time, position, classification), as well as, direct exposure to common everyday life activities so that they form a foundation of essential experiences that provide meaning to literacy. Therefore, after their developing these important experiences is sure, they are taken to the real learning of Braille literacy skills.

2.3.1. Pre-conditions in Braille Teaching

For children who are blind early instruction in Braille plays a crucial role to be able to fully participate with their peers (Bickford & Falco, 2012). Efficiency in Braille skills during the early years has a direct impact on a child's later literacy development. In order to be efficient and fluent Braille readers, all young children with visual impairments not only have to learn the Braille code, but must also develop mechanical skills. These mechanical skills include hand movement skills/finger positions; finger dexterity/wrist flexibility, tactile perception/discrimination and light finger touch skills. These skills should be brought together early and refined through the elementary years so that children, as they grow, can focus on correct and fluent Braille reading and writing. This early Braille teaching should be provided by skills competent teacher of students with visual impairments (Johnson, 2015).

Additionally, (Dodd, 2000) stated that when blind children start school, they are engaged in tactual discrimination and fine motor activities to attain reading and writing readiness. They are also taught skills in using books (e.g. orientation, page turning). Compared with sighted children of the same ability they may need longer to reach readiness for more formalized reading and writing instruction. Also, (Flegel, 2018) young children will benefit from being read aloud to, and should have a chance to handle Braille books well before they are formally taught to read

and write. In addition to adequate language development, a clear understanding of basic positional concepts, and an interest in books, Braille readers must also demonstrate sufficient tactile skills and fine motor coordination. Early literacy and pre-Braille skills are essential to success as a Braille reader.

Teaching Braille skills have own processes to provide maximum opportunities for hands-on exploration, kinesthetic development, gaining of fine and gross motor skills of blind children. For that, organizing Preschool programs that include children who are blind is crucial. Teaching the skill is more than telling the code of Braille to the learners. Therefore, knowing the learners and adopting method of teaching is advisable. According to (D'Andrea D. P., 2006) early literacy and pre-Braille skills are essential to success as a Braille reader. Also, (Floyd, 2019) pre-Braille skills are skills designed to increase tactual awareness and perception in individuals who will learn to read and write Braille in the future.

2.3.2. Methods of Teaching Braille Reading Skills

In the absence of vision, since they are the ones to be used as sources of information sensory training of the remaining senses like the sense of touch and the sense of hearing is important and should be included in readiness of literacy program. Regarding this Willings, (2017) supposed that the student's tactile and perceptual abilities and skills are critical to learning to read Braille. Students with visual impairment will need special instruction to learn to read Braille code. Usually they are introduced first to the alphabet and un-contracted Braille, and once they are proficient in recognizing and producing letters, they move on to contracted Braille (D'Andrea, 2006). According to (Willings, 2017) in teaching Braille reading skill the teachers should encourage the student to identify that each finger has a "job" lead finger or detective fingers, to "read" tactual books using the correct finger position, to use the pointer finger as lead finger and use a pinky finger to detect the end of a line, to identify the one symbol that is different within a group of three symbols, two of which are identical, to match Braille configurations, to identify the spaces on a line of groups of Braille symbols with one or more spaces between them and to identify the groups of symbols when given a line of Braille symbols and groups of Braille symbols.

Also, Serah W. N, (2014) the sensory modality used is the most basic and obvious way in which reading Braille differs from reading print. Print readers read visually and Braille readers read

tactilely. Among the number of methods that teachers can embrace in teaching reading to beginners, the most commonly used the context support method is available for blind students. It is important to choose books that really interest the children, when they are just learning to read. If boys like horse, the teacher should choose a book with pictures and simple words about horse. This would keep their interest and they would enjoy learning with the teacher.

2.3.2.1. Mechanics of Reading Braille

When instructing a student in Braille reading the important one is to teach correct finger and hand use. According to Willings, (2017) different students will use different types of hand movement patterns to read Braille. The most efficient pattern is to use a scissor type pattern, moving both hands together and light finger touch is also critical for students to acquire. Additionally Serah W. N, (2014) state that good Braille reading is characterized by few zigzag, fluttering movements or up-and-down, uniform pressure of the finger on the page, no regressive movements and stable movements between lines with the help of both hands combined with a deep and accurate sympathetic of the meaning of the text.

Different research findings demonstrated that perception is tied to movement in Braille reading. In fact, perception cannot occur without movement. And also, the key importance of an individual reader's tactile perceptual abilities in developing good Braille reading skills, such as how the reader moves her or his hands. This difference in perception from print reading has significant implications for the skills Braille readers need to learn, and teachers must make unquestionable that their instructional strategies are reliable with the way Braille readers' process information. If they are to become efficient readers the Braille teacher must help students develop good hand movements. Therefore, teachers must also be able to recognize ineffective hand movements and learn how to eliminate them and replace them with effective ones. According to Kimeto,(2010) Braille could not be perceived without movement of the fingers over the Braille symbols, teaching Braille readers the correct way to move their hands in order to locate and identify the symbols was a critical element of teaching the beginning of Braille reading. Individuals with visual impairment use different types of hand movement patterns in reading Braille. In general, the most efficient pattern was moving the two hands like scissors the left hand reads to the middle of the line. Then the right hand takes over and begins to read independently to the right. The hands meet in the middle of the line of Braille and then separate.

2.3.3. Braille Reading Rate

For blind people the value of literacy skills is as significant as it is for those with the eyesight. It suggested that blind children who learn Braille have an advantage compared to those who rely exclusively on print. Children with blindness and significant vision loss are at an increased risk of literacy problems relating to reading speed and accuracy. Many of these students read below grade level, with delays similar to those of struggling readers who are sighted. More, significant delays in text comprehension comparable the slower rate of reading development exhibited by Braille. The poor reading attainment of students with visual impairments and the life-long penalties of low literacy make it imperative that teachers of the blinds use Braille teaching practices that have a demonstrated record of success. The earliest measures of Braille reading rates were conducted in the latter half of the 20th century concluded that the consecutive nature of Braille reading, demanded by the limitations of tactile perception, avoid Braille readers from attaining rates equal to their sighted peers. It is generally accepted that a good Braille reader reads at approximately 1/3–1/2 the speed of a print reader of the same age. When compared to each other for adults print readers read in average of 200-300 words per minute and Braille readers read in averages of 70-100 words per minute (Johnson, 2015)

According to (Carver, 1989), the print readers read (Grade 1= 60, Grade 2= 70, Grade 3=120 Grade 4=150, Grade 5= 170, Grade 6= 245 and Grade 7= 300) minimum words per minute at each grade levels. Additionally, (Dimitrova-Radojichikj, 2015) conclude that in average Braille readers read about 150 words per minute that is the half speed of print readers. And Fountas & Pinnell (*teachingvisuallyimpaired.com*) stated that the expected oral reading rates in wpm for grade 1 to 4 students with unimpaired vision ranged from 75 to 160.

2.3.4. Teaching Braille Writing

As the students learn to read they must also simultaneously learn how to write. Writing was both a process and a mechanical production of the symbols of a language which meaning was conveyed to an audience or readers. According to Cheadle, (2007) there are three methods of writing Braille: slate and stylus, Braillewriter, and a computer Braille embosser. Also (Kimeto, 2010) stated that a pupil with visual impairment used a Perkins (Braillewriter), slate and stylus as an assistive device for writing. So, before start teaching writing, it is important to check available

materials. (Barraga, 1992)State that, the choice of appropriate materials and the use of efficient instructional methodology can make a critical difference in success in learning writing for the child with visual impairment. Therefore, choosing writing devices can include: Perkins, Slate and Stylus, Electronic device like embosser etc. additionally, before teaching takes place, there should be the concerns of age of student, finger size/strength, additional physical and intellectual challenges get attention.

2.3.4.1. Teaching the Slate and Stylus

According to (Cheadle, 2007) a slate and stylus is to a Braille reader what a pen or pencil is to a print reader. Just as the pen or pencil is designed to place a visible mark on a piece of paper, the slate and stylus is designed to emboss raised, tactile dots onto a page.

In developed countries, Braille is usually embossed with a six-key typewriter known as a Perkins Brailler; these devices are fast and easy to use but also cost. In developing countries, such devices are prohibitively expensive and Braille is almost always written with a slate and stylus. Using these tools, Braille is written from right to left, so that the page can be read from left to right when it is removed from the slate and turned over. For blind children, learning to write Braille in this manner can be difficult. Therefore, Blind students must learn mirror images of all letters which doubles the alphabet and creates a disparity between the written and read form of each letter to use slate and stylus effectively (Kalra, 2009).

Similarly (Frcho, 2019) stated that write Braille with slate and stylus is the first form of writing Braille that most readers learn. Writing with slate and stylus is not easy as print! When using it you must write the cells in reverse order; right to left. This way when the paper is removed from the slate and flipped-over for reading; the raised dots are in the correct reading order.

So, the stylus and slate is one of the important, oldest, most portable, and most dependable tool for writing in Braille. It is very helpful and useable by blind people compared to the sighted person’s pen or pencil. Like the pen and pencil, the slate and stylus is inexpensive and simple to use. It allows a blind person to function independently and confidentially to write down information they can immediately read and review anytime in any setting. Therefore, blind children learn to use the stylus and slate is as the same reasons that sighted learners to write with

a pen and pencil. And, rejecting the blind child the slate and stylus is equivalent to rejecting the sighted child the pencil (Eldridge, 2005).

According to (E.H. Kwaya N. M., 2010) related to learn Braille writing with slate and stylus the A-J+3+6 method is important. Writing Braille with slate and stylus is not writing backward. By remembering the dots position A-J+3+6 Method enabled students to write Braille with slate and stylus without doing mental reversal of the Braille code before writing.

Speed a blind student writes with a slate and stylus:

According to Cheadle, (2007) a blind student writes with a slate and stylus as fast as a sighted student can write notes with a pen or pencil. Hence, those blind students who use slate and stylus should be able to write a minimum of 15 to 20 words per minute by the time they enter high school. This speed is based upon timed trials in which the student writes out complete sentences with correct spelling and punctuation. Good instruction and daily practice are as important for the Braille student as they are for the sighted student.

2.3.4.2. Teaching Braille writer (Perkins)

According to Cheadle, (2007) a Braillewriter is a machine comparable to a typewriter. It has a keyboard of six keys (one for each dot in the Braille cell) and a space bar. Pushing various combinations of the keys on the Braillewriter produces different letters of the alphabet and other Braille symbols. Frcho, (2019) one of the most popular Braillewriters is the Braille Perkins. It's great for Braille writing and easy to use. So, According to Kimeto, (2010) learners should learn which fingers were used to press down each key. The index finger of each hand was used for dots 1 and 4, respectively; the middle fingers, for dots 2 and 5; and the fourth fingers, for dots 3 and 6. One of thumb was used to press down the space bar. All fingers were to be on the keys at the same time and exert even pressure. Proper finger placement was achieved more readily if pupils were strong enough to press down more than one key at once to form the various Braille characters. Learners need to practice pressing the keys down simultaneously without having one or two keys lag behind.

2.4. Braille Contraction and its Importance

The contracted Braille is grade-two Braille that used to contractions and un-contracted Braille is grade-one Braille that is a letter substitution of print to Braille foundation of the Braille code. According to Cheadle, (2007) most Braille books are printed in contracted Braille although some books for very young children are published in un-contracted or alphabet Braille. Because, contractions are short ways of writing Braille that make reading and writing Braille faster, and the Braille takes less space, so the main point of using contractions in Braille at all is to save space, time and adding reading speed. (Anneli Veispak a, 2012) stated that different types and amounts of contractions, aimed at saving space and speeding up the reading process.

2.5. Factors Affecting Braille Skills

According to (MacCuspie, 2002) there are some factors affecting Braille skills. Those are: The necessity of using Braille has been reduced by the increased student dependence on recorded materials and technology using speech, university programs which prepare teachers for students who are blind or visually impaired are not emphasizing the importance of Braille and are not providing adequate instruction in Braille literacy, the rejection of the former practice of teaching Braille to most students regardless of the visual abilities of a given student, the increase in the number of children who are blind or visually impaired who have additional disabilities which frequently preclude them from formal literacy instruction, the complexity of the Braille code excludes many from acquiring an adequate level of literacy and critical shortage of teachers of students who are blind or visually impaired.

2.5.1. Teachers' Qualifications

According to N. Kalra, (2008), less than 3% of the 145 million blind people living in developing countries are literate. This low literacy rate is partly due to the lack of trained teachers. Also, (Vassilios A, 2019) stated that the blind children are not being taught Braille because the teachers who are supposedly trained to do so themselves do not know the Braille codes sufficiently. For the reason, the numbers of blind people who know to read and write Braille are decrease.

To solve the decline of Braille literacy skills of blind learners working on their teachers is a key important. To improve this idea, (MacCuspie, 2002) discussed that depend on the Canadian

committee of Braille authority suggestion, the minimum standards for teachers of Braille literacy skills are: hold qualifications as a teacher of students with visual impairments, have completed university coursework focusing on the literary Braille code, have completed university coursework focusing on teaching Braille reading and writing.

Similarly, according to Romanian National Education Law no.1/2011) the main criteria to be a teacher for blind learners are; it is needed to provide confirmation of Braille literacy skills proficiency that proves the completion of the Braille Literacy Teaching course. Teaching Braille literacy for blind students can be a component of a more general course on education of people with vision impairment or can be a separate course that aims to develop practical skills of Braille literacy skills (Vassilios A, 2019).

Additionally, on work training is very important for all professionals including teachers who have the Braille literacy skills profession for many years (Gilson, 2014). Arguments that certified blindness professionals who have not provided Braille instruction for several years might need a brush-up training to revive their skills. Additionally, California Department of Education, (2006) stated that teachers of children who are blind need access to ongoing in-service training to enhance and refresh their university preparation activities.

In general, some Braille readers may take longer to achieve fluency than their sighted peers who read print. (D'Andrea, 2009) (D'Andrea F. , 2009) stated that this lag is temporary, and most children who read Braille master the code with relative ease, given appropriate instruction. So fluency of Braille readers may have direct relationships with their teachers' literacy competence.

2.5.2. The age of learner

Early age is very crucial for every developmental age of all human binges, so if everybody thinks effective life the child for the future he/she should fertile early life of their child. This fact is true for literacy of all children including blind learners. Dimitrov-Radojichikj,(2015) conclude that the children who were taught Braille literacy skills before the age of ten generally became faster to read and write Braille, this shows that the age at which Braille is learned may affect the speed at which Braille literacy skills is processed. According to California Department of Education, (2006) children become blind at different times in their lives. Therefore, they need to learn beginning Braille literacy at any age and at any grade level, circumstances that provide additional challenges for students and teachers.

CHAPTER 3

3. RESEARCH DESIGN AND METHODOLOGY

3.1. Description of the Study Area

The study was conduct in Primary School for the Blind which is found in Oromia regional state specifically in Sebeta City Administration. Sebeta city Administration is in Southern part of Addis Abeba, near the capital of Ethiopia, Addis Ababa. The City Administration of Sebeta is about 23 kilo meters from Addis Ababa. The City Administration is on the main road from Addis Ababa to Jimma. The school is located near this main road and is found in the same compound with Sebeta Special Education Teachers College. Sebeta Primary School for the blind is the only school of its kind in the City. Not only in Sebeta City Administration but also in Ethiopia, this school has long history and is the first residential school for the blind. In the academic year of 2019/2020, there are a total of 254 students (M = 148, F = 106). Out of the total numbers of students, 169 of them are totally blind while 85 of them are partial. This study focused on the total blind students from grades 1 to 4.

3.2. Research Design

In this study a descriptive survey design was used. This method was selected to study the problem because it can provide frame work to analyze data gathered through interview, test, focus group discussion and observation. The major purpose of the survey type research was a description of the state of affairs as it exist at present (Best and Khan, 2002:30); Kothari, 2003:89).

3.3. The Study Participants

The participants of this study were total blind students from grades 1-4. All grades 1 to 4 students take Braille as a subject. Braille teachers, school principals, special needs education resource room coordinator in Sebeta Primary School for the blind and documents used to teach Braille literacy skills like teachers' guides and manuals were used as data sources.

3.4. Sample and Sampling Techniques

The study was conducted in Sebeta town, Oromia region. For the study, Sebeta primary school for the blind was purposively selected. From all students in the school, only total blind learners were selected from grades 1 to 4. Grades 1-4 were selected because Braille was given as a subject for these grades only. Therefore, populations of grades 1 to 4 students were selected using purposive sampling techniques. Then, from each group of populations the samples of the study were selected by systematic sampling method. Furthermore, three of Braille teachers from 32 total number of school teachers, one resource center coordinator and 2 school principals were selected purposively. As the focus of this study was on BR and BW skills, teachers of other subjects were not included.

Table 1: Summary of populations and sample sizes

Group of Population	Total Population			Total Sample		
	M	F	Total	M	F	Total
Grade 1	14	18	32	6	10	16
Grade 2	22	17	39	12	14	26
Grade 3	19	10	29	12	5	17
Grade 4	9	14	23	3	7	10
Braille teachers	2	1	3	2	1	3
School principals	1	1	2	1	1	2
Resource center coordinator	1	0	1	1	0	1
Total population/sample	80	71	**129**	48	42	**75**

3.5. Instruments of Data Collection

In the present study, the instruments like test, interview, focus group discussion and observation were used to collect the data.

3.5.1. Test

Testing was practically used to check the reading and writing skills of the students. To deal with the issue, grades 1- 4 students were presented with different Braille reading and writing skills. These tests were based on the curriculum taught in the school particularly Afan Oromo and English. Each of the students took two reading tests (in Afan Oromo and English) and two writing tests (in Afan Oromo and English). The contents of the tests were mostly words and a few numeracies. The tests were prepared from the students' textbooks. Hence, the numbers of words provided in each of the tests were clearly based on the grade level of students. Not only

the number of words, but also the contents of the tests were familiar to the students and to their level of education. In the test contents, contracted and un-contracted skills were also included (Appendices I to K). Generally, the number of words given to students as reading and writing testes were summarized in the following table (Table 2)

Table 2: Number of words of BR and BW tests given to students

Grade	Number of words for reading test		Number of words for writing test	
	English	Afan Oromo	English	Afan Oromo
1	30	30	20	20
2	70	66	56	56
3	83	88	30	56
4	107	80	39	32

3.5.2. Interview Guide Questions

Semi-structured interview questions were employed in this study to collect more supplementary opinions from all Braille teachers, school principals and resource center coordinator. Semi-structured interviews were used to obtained supportive data on the practices and overall experiences of the school in teaching Braille.

3.5.3. Observation checklists

The observation was used to check the reality of information collected from the teachers, principals and resource center coordinator. The instruments were made up of statements about activities and the preferred practices of the participants during the observations. The contents of the activities and observation lists were about the existing practices during reading and writing Braille.

3.5.4. Focus Group Discussion

In this research, focus group discussions were conducted for the selected samples of teachers and students separately. The discussions of students were held in four different groups according to their grade levels with six members in each group. That means, group one was made from six grade one students; group two was six students each from grade 2 students; group three consisted 6 grade 3 students and the fourth group was six grade 4 students. Each of the members in each group of the discussions was taken randomly from the already identified sample of students. Regarding teachers' focus group discussion, the group consisted in four members (three Braille teachers and one SNE resource center coordinator). The researcher, together with the moderator managed the discussions for each group turn by turn separately. The moderator raised the leading questions while the researcher was taking note of the responses. The discussion groups provided members with the opportunity and helped them express their views precisely on the issues. All data notes in the form of discussion transcripts were carefully read again and again to develop an understanding of the case. Once this was done, the key themes were identified from the discussions and the responses were summarized.

3.6. Procedures of Data Collection

Before starting collecting data, the researcher first received support letter from Addis Ababa University College of Education and Behavioral Studies Department of Special Needs Education. Secondly, the researcher got support letter from Sebeta Primary School for the Blind. Thirdly, the researcher asked participants to provide their consent to determine the availability, acceptability and willingness to participate. After their consent was secured, the BR and BW tests were given to student participants. Next to this, the participants were asked to indicate the most appropriate time for them to conduct the interview and focus group discussion. Then the interview and focus group discussion were held with the participants based on the program. Each interview was begun with an explanation of the purpose of the interview. Similarly, the focus group discussion was held during the convenient time for the participants. Finally, the observation was conducted after both interview and focus group discussion were held with the participants.

3.7. Methods of Data Analysis

The main purpose of this study was to investigate the Braille literacy skills of total blind students in Sebeta School for the blind. To examine this, both quantitative and qualitative data were collected from sample participants. After all data collected from different sources, the researcher used descriptive methods by identifying key themes to analyze qualitative data and used percentage, mean and frequency to analyze quantitative data. The Braille reading and writing skills of students in English and Afan Oromo were compared for significant differences using t-test on SPSS software. Based on the analysis of data, the results were discussed and summarized to give conclusion and recommendations.

3.8. Logistic and Ethical Considerations

Logistics are those processes, activities or actions that a researcher must address or carry out to ensure successful completion of research.

The researcher was guided by the following ethical considerations:

1. The information obtained was treated with confidentiality so as to maintain the secret of the source of information.
2. The researcher sought permission from the school, through Addis Ababa University department of special needs education.
3. The researcher ensured that the research does not cause any physical and/or psychological harm to the research participants.

CHAPTER 4

4. RESULTS AND PRESENTATION OF DATA

In this chapter all data obtained using test, interview, group discussion and observation checklists were analyzed part by part. After each analysis, interpretations were made. Finally, from the results, conclusions were made for each of the research questions and recommendations were forwarded.

4.1. Demographic Characteristics of Participants

This section of the study dealt with the characteristics of the participants in terms of sex, educational background and work experience.

Table 3: Characteristics of Participants

Characteristics		Teachers		School principals		SNE Resource center coordinator		Students	
		N	%	N	%	N	%	N	%
Gender	M	2	66.67	1	50	1	100	33	47.83
	F	1	33.33	1	50	0	0	36	52.17
Qualifications	Degree	3	100	2	100	1	100		
	SNE trained	1	33.33	1	50	1	100		
	Braille skilled	1	33.33	0	0	1	100		
Years of services	5-10	1	33.33	0	0	1	100		
	11-15	0	0.00	2	100	0	0		
	16-20	2	66.67	0	0	0	0		

From the above table (Table 3), the gender distribution of participants were (M=50%, F=50%) for school principals and (M=47.83%, F=52.17%) students. The same table also indicated that teachers, school principals and SNE resource center coordinator participated in this study were all bachelor degree holders. The work experiences most of the teachers (66.67%) were 16 years and above while that of all the school principals were 11 years and above. The resource center coordinator of SNE was Braille skilled and had SNE trainings, but he had less work experience than teachers and school principals participated in the study.

Again, the same table (Table 3) showed that only 33.33% of the teachers and SNE resource center coordinator were Braille literacy skilled and SNE trained. On the other hand, none of the school principals were Braille skilled (Table 3).

4.2. Practices of Braille Reading Skills of Blind Students

According to the current curriculum, students from grade 1 to 4 take Braille in Afan Oromo and English. In line with this, students' Braille Reading Skills were investigated using English and Afan Oromo tests separately. Then, the results of their Braille skills in reading Afan Oromo and English words were compared using independent sample t-test.

4.2.1 English Braille Words Reading Skills of Blind Students

In this section, Braille Reading (BR) Skills of blind students obtained from students' English tests were presented.

Table 4: Frequency and percentage description of English BR test results of blind students

Grade	Words						Rate in words per minute (wpm)	Total number of words
	Read correctly		Tried but read incorrectly		Not read at all			
	N	%	N	%	N	%		
Grade 1	13	43.33	11	36.67	6	20.00	4	30
Grade 2	31	44.29	21	30.00	18	25.71	7	70
Grade 3	35	42.17	25	30.12	23	27.71	9	83
Grade 4	35	32.71	43	40.19	29	27.10	10	107

As it can clearly be seen from the table above (Table 4), the percentages of reading English Braille words correctly were 43.33% (grade 1), 44.29% (grade 2), 42.29% (grade 3), and 32.71% (grade 4). Relatively the percentages of words read correctly by grades 3 and 4 students were slightly lower than that of grades 1 and 2 students. Generally, from the same table, the percentages of English Braille words read correctly by students from grades 1 to 4 laid between 32.71% (grade 4 students) to 44.29% (grade 2 students).

On the other hand, the percentages of English Braille words not read correctly (tried but not read and not read at all) were 56.67% (grade 1), 55.71% (grade 2), 57.71% (grade 3), and 67.29%

(grade 4) (Table 4). These results indicated that all student participants in this study did not read most percentages of English Braille words correctly.

Furthermore, the average oral reading rates in words per minute (wpm) of students were 4 wpm for grade 1, 7 wpm for grade 2, 9 wpm for grade 3 and 10 wpm for grade 4. But, according to Fountas & Pinnell (*teachingvisuallyimpaired.com*), the oral reading rates in wpm for grade 1 to 4 students with unimpaired vision ranged from 75 to 160 (i.e., 75 to 100 wpm for grade 1, 90 to 120 wpm for grade 2, 100 to 140 wpm for grade 3 and 120 to 160 wpm for grade 4). Relatively, students' reading rate seemed increasing while their reading ability was decreasing with increase in their grade levels (Table 4). One of the reasons for might be Braille teachers focus more on how to read correctly than how to read fast in their teaching at grades 1and 2 than at grades 3 and 4. According to Johnson (2015), a good Braille reader reads at approximately 1/3–1/2 the speed of a print reader of the same age. Generally, this could show that students' English Braille reading rate was very slow.

4.2.2 Afan Oromo Braille Words Reading Skills of Blind Students

Under this section, blind students' Braille Reading skills of Afan Oromo words were discussed from their reading test results.

Table 5: Frequency and percentage description of Afan Oromo BR test results of blind students

Grade	Words						Rate in words per minute (WPM)	Total number of words
	Read correctly		Tried but read incorrectly		Not read at all			
	N	%	N	%	N	%		
Grade 1	16	53.33	10	33.33	4	13.33	6	30
Grade 2	39	59.09	18	27.27	9	13.64	9	66
Grade 3	62	70.45	19	21.59	7	7.95	12	88
Grade 4	60	75.00	15	18.75	5	6.25	16	80

From table 5 above, the percentages of reading Afan Oromo Braille words correctly were 53.33%, 59.09%, 70.45%, and 75.00% for grades 1, 2, 3 and 4 students respectively. This result shows that students of grades 3 and 4 showed larger percentages of reading Afan Oromo Braille words correctly than grades 1 and 2 students. Further, the results in the table indicated that the

percentages of reading Afan Oromo Braille words correctly increased as students' level increased from grades 1 to 4.

Regarding their Braille reading rate (speed), the number of words read per minute appeared increasing from 6 wpm to 16 wpm for students of grades 1 to 4 respectively. But, according to Fountas & Pinnell *(teachingvisuallyimpaired.com)*, the expected rate recommended ranged from 75 to 160 wpm for grades 1 to 4 students with unimpaired vision. But Johnson (2015) stated that a good Braille reader reads at approximately 1/3–1/2 the speed of a print reader of the same age.

Overall, from tables 4 and 5, it appeared that students participated in the study read more percentages of Afan Oromo than English Braille words. Furthermore, whether this result varies significantly or not, their mean scores were tested for any significant difference and the result was presented in the following table (Table 6).

Table 6: The t-test results of students' BR test in English and Afan Oromo

Group	N	Mean	St. D	t-value	Df	Sig. (2-tailed)
English	69	40.36	4.67	-4.963	136	.001
Afan Oromo	69	67.82	11.46			

The mean scores of students' Braille reading in English and Afan Oromo were 40.36 and 67.82 respectively. The t-test results of their mean scores in correctly reading Braille words in English and Afan Oromo detected statistically significant difference (*p*- value = 0.001). The difference might be due to the fact that Afan Oromo is the media of instruction there.

4.3. Braille Writing Skills of Blind Students

In the context of education, Braille writing is crucial especially for students in school for the Blind. To assess the Braille reading skills of students in Sebeta School for the blind, the writing tests were given to students in English and Afan Oromo. Under this section, the test results were analyzed and presented.

4.3.1. English Braille Words Writing Skills of Blind Students

Students were provided with English Braille Writing (BW) tests. The results were as in the following table (Table 7).

Table 7: Frequency and percentage description of English BW test results of blind students

Grade	Words						Rate in words per minute (wpm)	Total number of words
	Written correctly		Tried but written incorrectly		Not written at all			
	N	%	N	%	N	%		
Grade 1	9	45.00	7	35.00	4	20.00	2	20
Grade 2	32	57.14	14	25.00	10	17.86	4	56
Grade 3	15	50.00	9	30.00	6	20.00	3	30
Grade 4	8	20.51	13	33.33	18	46.15	4	39

From this table (Table 7), among students of grades 1 to 4, the maximum percentage of English Braille words written correctly was 57.14% (grade 2 students) while the minimum percentage (20.51%) was recorded by grade 4 students. Relatively, grades 2 (57.14%) students wrote larger percentages of words correctly than the rest grades in the study (Table 6).

When students' grade level increased from grade 3 to grade 4, English Braille writing skill of students decreased from 50.00% to 20.51%. Generally, students' English Braille writing skills appeared to be decreasing (57.14% to 20.51%) as students' grade level increased from 2 to 4. Referring to one of the objectives of the Braille syllabus of the school (Sebeta School for the blind), the results from teachers' interview showed that students master important Braille skills at grade 4 levels. But, students' Braille writing test indicated that relatively the poorest Braille writing skill was seen at grade 4 level. Hence, the actual existing Braille writing skills of students contradicted the expected objective of the Braille syllabus. Regarding the Braille writing rates in wpm, all students participated in the study wrote a maximum of 6 wpm.

4.3.2. Afan Oromo Braille Words Writing Skills of Blind Students

Under this section, students' Afan Oromo Braille writing test results were presented and discussed.

Table 8: Frequency and percentage description of Afan Oromo BW test results of blind students

Grade	Words						Rate in words per minute (wpm)	Total number of words
	Written correctly		Tried but written incorrectly		Not written at all			
	N	%	N	%	N	%		
Grade 1	10	50.00	6	30.00	4	20.00	2	20
Grade 2	25	44.64	21	37.50	10	17.86	2	56
Grade 3	32	57.14	15	26.79	9	16.07	5	56
Grade 4	24	75.00	6	18.75	2	6.25	6	32

The above table (Table 8) showed that except grades 1 and 2 students, all students participated in the study write more than 57% of Afan Oromo Braille words correctly. Students of grades 3 and 4 wrote 57.14% and 75.00% of Afan Oromo Braille words correctly.

From the same table, the percentages of Braille words written correctly by grade 1 students (50.00%) were larger than that of grade 2 students (44.64%). Again from the same table, it appeared that the Braille word writing rates of those students were increasing from 2 to 6 wpm as students' grade level increases from grades 1 to 4. It seemed important to notice that 55.36% (=100.00% - 44.64%) of the words were written wrongly by grade 2 students.

Students in grades 4 (75.00%) showed more performance in writing Afan Oromo Braille words than other students in the study.

Comparing tables 6 and 7 on Braille writing skills of students in English and Afan Oromo, independent samples t-test showed that their mean scores were respectively was conducted and presented in the following table (Table 9).

Table 9: The t-test results of students' BW test in English and Afan Oromo

Group	N	Mean	St. D	t-value	df	Sig. (2-tailed)
English	69	45.51	14.87	1.661	136	.135
Afan Oromo	69	61.61	15.87			

The mean scores of Braille writing of students in English and Afan Oromo were 45.51 and 61.61 respectively. The t-test results of their mean scores on their Braille writing skills using Slate and Stylus in English and Afan Oromo showed statistically no significant difference (*p*- value = 0.135).

The school principals said that students promote from grade to grade by comparing the average of each subjects including Braille. Also Braille teachers said that no special attention taken Braille skills, therefore, the students can score high marks on other subjects like music and pass by the averages of all subjects. For this reason, students did not give special attention to practice the Braille skills and pass grade to grade without mastering their grade level skills. Additionally, in their group discussion, students by themselves mentioned that: *"We can't read and write well, so, most of the time we depend on audio listening."* But, according to Ryles, (1996) Braille is the most critical and powerful literacy tool in the life of a person who is functionally blind.

4.4 Challenges of Braille Reading and Writing Skills of Blind Students

Under this section, the results obtained from researcher's observation, teachers', principals' and resource center coordinator's interview on challenges of Braille reading and writing skills of students were presented. Findings obtained from students' focus group discussions were also used to supplement the results.

From the researcher's observations, unarranged sitting and desks, inadequate teaching and learning resources were seen in classrooms. The arm chairs were not comfortable to read with two hands and to write using slate and stylus. Most of grades one and two students were unable to use the tables in the classes to read and write. Additionally, most of grades three, four and eight students used arm chairs like visual students. All Braille teachers couldn't freely move and check all students' activities because classroom arrangements were not structured to accommodate teachers and students who are total blinds.

Scarcity of teaching resources like storybooks, student text books, different flashcards and etc. to practice Braille reading skills were also observed. Furthermore, there were no writing materials like Braille typewriters (Perkins) to practices Braille writing skills. As a result, majority of the

lesson delivery was observed to be lecture method. Not only observation, also the results from students' and teachers' FGD shows these realities.

In school library, sitting and books arrangements were good to accommodate total blind students. But, no more students were using and no schedules found in the library for each grade students. Additionally, the librarians have no Braille skills to support and motivate the students in the library.

The result of teachers' FGD and researcher's observation shows that in SNE resource center, reading and writing materials were not arranged to help (well-coming) students with total blind. In their dorms, when students come back from the class, they submit their slate and styluses for caregivers. Then at morning they take back when they go to the class. They did not read and write in the dorm.

Teachers and school principals indicated that there were Braille syllabus and the promotion policy problems in Sebeta School for the blind (discussed in section 5.4). Furthermore, lack of Braille skilled teachers and schools principals, inappropriate time allocation to Braille were another challenges.

CHAPTER 5

5. DISCUSSIONS OF FINDINGS

The objective of this study was to investigate the Braille literacy skills of total blind students in Sebeta School for the blind. In line with this, this section dealt with the discussions of the results.

5.1. The Braille Skills in the School

The results from table 3 showed that majority of the teachers (66.67%) have no Braille teaching methodology skills and didn't take SNE trainings. Furthermore, all the school principals (100%) have no Braille skills and only 50% of them attended SNE trainings. Hence, it could be said that, although they are Braille teachers and principals in school for the blind, they have Braille skill gaps and took no SNE trainings. But, regarding teaching the skill scholars suggest that children learn the skill in different ways, depending upon their inborn abilities, motivation, interests and experiences. For that reason, every teacher must have knowledge of the major methods for teaching Braille skills and build their future on a good base (Serah W. N, 2014).

5.2. Practices of Braille Reading Skills of Blind Students

According to unwritten curriculum in Sebeta School for the blind, students of grade 1 to 4 took Braille reading and writing skills in English and Afan Oromo subjects. In line with this, their Braille reading skills were tested and the results obtained were discussed under this section.

5.2.1 English Braille Words Reading Skills of Blind Students

As per their educational grade levels, total blind students are expected to read most of the Braille words in their respective subjects. But, the results in table 4 (section 4.2.1) indicated that the percentages of English Braille words not read correctly (tried but not read and not read at all) were 56.67% (grade 1), 55.71% (grade 2), 57.71% (grade 3), and 67.29% (grade 4). Missing correctly reading those percentages of words did not allow learners understand the expected skills and concepts in the subject.

Furthermore, the result from the same table (Table 4) showed that the percentages of words read correctly by grades 3 and 4 students were slightly lower than that of grades 1 and 2 students.

Similarly, as students' grade level increased from 3 to 4, the percentage of reading Braille words correctly dropped from 42.17% to 32.71% showing that grade 3 students read larger percentages of Braille words correctly than grade 4 students. Although it seemed that grades 1, 2 and 3 students read relatively larger percentages of English Braille words correctly than students of grades 4, all students participated in the study could not read majority of English Braille words correctly. Hence, one can infer that English Braille Reading Skills of all students participated in the study was low regardless of their grade levels.

Additionally, the average oral reading rates in words per minute (wpm) of students from grade grades 1 to 4 ranged from 4 wpm to 10 wpm. But, according to Fountas & Pinnell (*teachingvisuallyimpaired.com*), the oral reading rates in wpm for grade 1 to 4 students ranged from 75 to 160 for visual students. Regarding to the point Johnson, (2015) a good Braille reader reads at approximately 1/3-1/2 the speed of a print reader of the same age. Hence, the oral reading rates of students participated in this study seemed very low and by far lower than the expected reading rate.

Hence, one can infer that students participated in this study could not read the great majority of English Braille words correctly. At the same time, even for those words that they could read correctly, their oral reading rate seemed very slow. Hence, it could be said that English Braille Reading Skills of those students appeared poor and their reading rate seemed very slow.

5.2.2 Afan Oromo Braille Words Reading Skills of Blind Students

According to the current education policy in Ethiopia, the media of instruction for elementary school students at regional levels is the students' mother tongues. Therefore, total blind students in Sebeta Elementary School for the blind are expected to read Afan Oromo Braille words more fluently than words in second language or non-mother tongue subjects. Under this section, students' Braille Reading skills of Afan Oromo words were discussed from their reading test results.

From the findings under section 4.2.2, the percentages of reading Afan Oromo Braille words correctly were increased with students' grade level (Table 5). This percentage range laid between 53.33% and 75.00% for students of grade 1 to 4 respectively. Furthermore, the result in the same table (Table 5) indicated that students of grades 3 and 4 showed larger percentages of reading

Afan Oromo Braille words correctly than grades 1 and 2 students. From all these discussions, one can infer that students participated in this study could read majority of Afan Oromo Braille words correctly.

On the other hand, although the students' rate of Braille reading appeared increasing from 6 wpm to 16 wpm for students of grades 1 to 4 respectively (Table 5), the rate seemed very slow as compared to the expected rate that ranged from 75 to 160 wpm for grades 1 to 4 visual students. The expected rate of Braille readers ranged from 1/3-1/2 of visual readers. Hence, it seemed that students participated in this study possessed relatively good level of Afan Oromo Braille Reading Skills. But, their reading rate appeared very slow.

Comparing the results in tables 3 and 4 using t-test, the mean scores of students' Braille reading in English and Afan Oromo were 40.36 and 67.82 respectively. The t-test result detected statistically significant difference (*p*- value = 0.001) indicating that the students read more percentages of Afan Oromo than English Braille words. This might be because of the presence of contraction Braille words in English. But, according to Cheadle, (2007) the main point of using contractions in Braille at all is to save space, time and adding reading speed.

5.3. Braille Writing Skills of Blind Students

In the context of education, Braille writing is crucial especially for students in school for the Blind. To assess the Braille reading skills of students in Sebeta School for the blind, the writing tests were given to students in English and Afan Oromo. Under this section, the test results were analyzed and presented.

5.3.1. English Braille Words Writing Skills of Blind Students

It seems difficult to learn Braille without writing it. Hence, Braille writing skill is crucial. Giving students a writing test could be one the methods of checking their Braille writing skills. Based up on the results obtained from Braille writing test, discussions were presented under this section.

The findings from table 7 under section 4.3.1 showed that students' English Braille writing skills were 45.00%, 57.14%, 50.00%, and 20.51% respectively for grades 1 to 4. Grade 4 students write Braille words only 20.51% correctly. This mean that out of the total Braille writing tests

given grade 4 students wrote 79.49% incorrectly or did not write them at all. In English Braille writing test, missing 79.49% might indicate large gap in Braille writing skills.

According to the Braille syllabus (from teachers' interview), it was reported that simple Braille contractions start at grade three. Then students learn all contractions deeply at grade four, but all grade 3 and 4 books are written in un-contracted Braille. For this reason, grades 3 and 4 students couldn't have more chances of practicing to read and write in Braille contractions. Hence, most of them couldn't handle different books like storybook Braille code transcription independently. Furthermore, they didn't practice contracted Braille through studying other subjects. Hence, most of the students are poor in general and particularly in Braille contraction even at grade 4 whereby learning Braille is completed.

Regarding the Braille writing rates in wpm, all students participated in the study wrote a maximum of 6 wpm. This seemed too slow rate to write a word. Hence, it could be said that English Braille writing skills of most of the students participated in the study showed a large gap not only in writing the words correctly but also in rates of writing the words.

5.3.2. Afan Oromo Braille Words Writing Skills of Blind Students

Under this section, students' Afan Oromo Braille writing test results were presented and discussed.

Table 10: Frequency and percentage description of Afan Oromo BW test results of blind students

Grade	Words						Rate in words per minute (wpm)	Total number of words
	Written correctly		Tried but written incorrectly		Not written at all			
	N	%	N	%	N	%		
Grade 1	10	50.00	6	30.00	4	20.00	2	20
Grade 2	25	44.64	21	37.50	10	17.86	2	56
Grade 3	32	57.14	15	26.79	9	16.07	5	56
Grade 4	24	75.00	6	18.75	2	6.25	6	32

Regarding students' Braille writing skills in Afan Oromo, table 8 indicated that the percentages of Braille words written correctly by grade 1 students (50.00%) were larger than that of grade 2

students (44.64%). It could also be noticed that the percentages of writing Braille words correctly seemed increasing as students' level moved up from grade 3 to 4.

Again from the same table (Table 8), it appeared that the Braille word writing rates of those students participated in the study in wpm seem very low. These mean that, they took too much time to write a Braille word in Afan Oromo. This could be indicated from the same table that grade 2 students write 44.64% Braille words correctly at the rate of 2 wpm. Not only had the rate seemed too slow, but also 55.36% of the words were written wrongly.

From this, it could be said that the Braille writing skills of students of grades 1 to 3 showed large gaps as they could not write more than 57.14% of the words correctly with very slow rate. Although grades 4 seemed write 75.00% Braille words correctly, their rate in wpm seems very slow (6 wpm). But, according to Cheadle, (2007) blind students should be able to write a minimum of 15 to 20 words per minute by the time they enter high school.

Hence, one can infer that Afan Oromo Braille writing skills of students participated in the study showed large gaps both in writing correctly and in rates of writing as well.

According to the results obtained from independent sample t-test (Table 9), the mean scores of students in Braille writing skills in English and Afan Oromo were respectively 45.51 and 61.61. The result indicated that their mean scores on their Braille writing skills in English and Afan Oromo showed statistically no significant difference (p- value = 0.135). Hence, the large skill gap of students' in Braille writing did not significantly differ whether they were writing in English or Afan Oromo.

Furthermore, the interview result from school principals and Braille teachers indicated that students did not give special attention to practice the Braille skills and therefore, they have poor Braille literacy skills. Additionally, students by themselves confirmed that they can't read and write well, as a result, most of the time they depend on audio listening. This might indicate that the current Braille skills of students were poor.

According to the oral curriculum in Sebeta School for the blind, regular Braille reading and writing skills are completed from grades 1 to 4. Therefore, after grade 4 students are expected to read and write Braille words fluently. But all the findings under sections 4.2.1 to 4.3.2 showed

that Braille reading and writing skills of grades 1 to 4 students seem very low. This could indicate that there was a large gap in Braille reading and writing skills of all student participants in Sebeta School for the blind.

5.4 Challenges of Braille Reading and Writing Skills of Blind Students

Challenges of Braille reading and writing skills of students were discussed based upon the results obtained from researcher's observation, teachers', principals' and resource center coordinator's interview and students' focus group discussions.

The classroom environments for each of the classes (grade 1 to 4) were was not conducive for those learners to practice Braille reading and writing skills effectively. That was because of unarranged sitting and desks, inadequate teaching and learning resources. The arm chairs were not comfortable to read with two hands and to write using slate and stylus. There were no enough teaching-learning resources like storybooks, student text books, different flashcards, Braille typewriters (Perkins) to practices Braille writing skills. As a result, majority of the lesson delivery was observed to be lecture method. But, Barraga, (1992) stated that, the choice of appropriate materials and the use of efficient instructional methodology can make a critical difference in success in learning literacy for the child with visual impairment.

It was further observed that classroom arrangements were not structured to accommodate teachers and students who are total blinds. Therefore, all Braille teachers couldn't freely move and check all students' activities.

Also, around special needs education resource room, school library and dormitory were observed. In school library sitting and books arrangements were good to accommodate total blind students. But, during different observation no more students were using and no schedules in the library for each grade. Additionally, the librarians have no Braille skills to support and motivate the students in the library.

There were some Braille materials like Braille Perkins, Braille-board, Braille papers, slate and stylus, some tactile materials and some books in the SNE resource center. But those reading and writing materials were not arranged to help students with total blind. Specially, for grade one students different things that help children to develop their finger sensitivity like rough pieces of

wood, sugar, pieces of cloth, bids, sand, cubarism-board and abacus are not presented to them in arranged way to aware them before they are exposed to the real Braille teaching. Even, the center has no plan and schedule to provide professional support to teachers and students.

From all the results under section 4.4, one could infer that unarranged sittings and desks in classrooms, uncomfortable arm chairs in the classrooms for Braille students, inadequate resources like storybooks, text books, flashcards, Braille typewriters, lecture method delivery approach (with no practices), uncomfortable classroom situation for Braille teachers and students, students' lack of awareness and support in Braille reading and writing activities, disorganized SNE resource center

Other challenges in students' Braille reading and writing skills were inappropriate height of chairs in the class, learners' lack of experiences in using their fingers during Braille reading, like lack of moving both hands together and light finger touch, un-relaxed elbows of some students and students' lack of experiences in slightly bending their fingers in touching Braille dots. Realated to these Bickford & Falco, (2012) point out that all young children with visual impairments not only have to learn the Braille code, but must also develop mechanical skills like hand movement skills/finger positions; finger dexterity/wrist flexibility, tactile perception/discrimination and light finger touch skills. These skills should be brought together early and refined through the elementary years. Also, Willings, (2017) different students will use different types of hand movement patterns to read Braille; from those the most efficient pattern is to use a scissor type pattern. Additionally Serah W. N, (2014) stated that good Braille reading is characterized by few zigzag, fluttering movements or up-and-down, uniform pressure of the finger on the page. But, more students included in this study lack these patterns. Therefore, everybody can conclude that lack of experiences in using their fingers is the challenge.

Promotion policy was found to be one of the big challenges. In schools for the blind, Braille reading and writing skills seem to be one of the major criteria in students' promotion. But, in Sebeta School for the blind, Braille reading and writing skills were not criteria for students' promotion from grade to grade. Rather, the school has been using uses the average of all the subjects. This caused those students even with very low score in Braille subject promotes to the next grade level without having required Braille skills.

It was indicated lack of Braille skilled school principals and lack of Braille teaching methodology skilled teachers, was another challenge. Teachers without Braille teaching methodology skills would not be able to train Braille skilled students. Additionally, students take Braille exams orally. It seemed that such experiences made students not to practice Braille skills. Furthermore, except teachers with visual impairments, all school teachers did not prepare exams in Braille. Even when the exam was prepared in Braille, those teachers would not give feedbacks in Braille. All these seemed contributed to the poor Braille skills of students.

The time allocation is not syllabus or research based but the school is practicing through experiences. This also appeared as one of the challenges to in practicing Braille reading and writing skills. Furthermore, teachers' lack of skills and trainings on Braille subjects, students' lack of interests and their undisciplined behaviors, lack of Braille professionals were other contributing challenges to students' poor Braille skills. Because, according to Johnson, (2015) early Braille mechanical skills teaching should be provided by skills competent teacher of students with visual impairments. Also, Willings, (2017) stated that in teaching Braille reading skill the teachers should encourage the student to identify that each finger has a "job".

CHAPTER 6

6. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter dealt with summary, conclusions and recommendations. It has three sections. In the summary section, the major findings of the study were presented while the second section dealt with the conclusions drawn from the findings of the study. The final section provided some suggestions based on the major findings and conclusion drawn from the study.

6.1. Summary of Major Findings

The main purpose of this study was to investigate the Braille literacy skills of total blind students in Sebeta School for the blind.

Specifically, the objectives were to:

1. assess the practices of Braille reading skills of blind students at Sebeta School for the blind.
2. investigate the Braille writing skills of blind students at Sebeta School for the blind.
3. identify the challenges of Braille reading skills and writing skills of blind students.

To achieve these objectives, a descriptive survey design was applied. The data were collected through interview from school principals, Braille teachers and resource center coordinator. Braille reading and writing tests were used to collect data from students. Furthermore, responses obtained from teachers' and students' focus group discussions and observation checklists were used to supplement the obtained response. Three Braille teachers from 32 total number of school teachers, 1 resource center coordinator and 2 school principals were selected purposively. Populations of grades 1 to 4 students were selected using purposive sampling techniques. Those samples of the study were selected by systematic sampling method. After data collection, the researcher used descriptive methods to analyze qualitative data and used percentage, mean and frequency to analyze quantitative data. The Braille reading and writing skills of students in English and Afan Oromo were compared for significant differences using t-test on SPSS software. Based on the analysis of the data, the major findings of the study were summarized as follow.

The results obtained from students' Braille reading tests imply that students participated in this study could not read the great majority of English Braille words correctly. At the same time, even for those words that they could read correctly, their oral reading rate seemed very slow. Hence, it could be said that English Braille Reading Skills of those students appeared poor and their reading rate seemed very slow. Regarding Afan Oromo reading skills, it seemed that students participated in this study possessed relatively good level of Reading Skills. But, their reading rate appeared very slow. The study also has shown that, this finding detected statistically significant difference indicating that the students read more percentages of Afan Oromo than English Braille words.

According to the responses obtained from students English Braille test results, out of the total Braille writing word tests given, grade 4 students wrote 80.00% incorrectly or did not write them at all. English Braille writing skills of students appeared to be decreasing (57.58% to 20.51%) as students' grade level increased from 2 to 4. Overall, English Braille writing skills of most of the students participated in the study showed a large gap not only in writing the words correctly but also in rates of writing the words. In a similar fashion, students' Braille writing skills in Afan Oromo, indicated that the percentages of Braille words written correctly by grade 1 students (50.00%) were larger than that of grade 2 students (44.64% while the percentages of writing Braille words correctly seemed increasing as students' level moved up from grade 3 to 4. But, Braille word writing rates of those students participated in the study in wpm seems very low. Not only the rate seems too slow, but also 55.36% (=100.00% - 44.64%) of the words were written wrongly. Thus, Afan Oromo Braille writing skills of students participated in the study showed large gaps both in writing correctly and in rates of writing as well. The responses obtained from principals' interview and students' focus group discussion indicated the same finding as the test results. The large skill gap of students in Braille writing did not significantly differ on t-test whether they were writing in English or Afan Oromo.

Regarding challenges of Braille reading and writing skills of students, some of the challenges were found to be unarranged sittings and desks in classrooms, uncomfortable arm chairs in the classrooms for Braille students, inadequate resources like storybooks, textbooks, flashcards, Braille typewriters, lecture method delivery approach (with no practices), uncomfortable classroom situation for Braille teachers and students, students' lack of awareness and support in

Braille reading and writing activities, disorganized SNE resource center. Responses obtained from teachers' interview also supplemented that, some of the challenges in students' Braille reading and writing skills were inappropriate height of chairs in the class, learners' lack of experiences in using their fingers during Braille reading, un-relaxed elbows of some students and students' lack of experiences in slightly bending their fingers in touching Braille dots. According to the responses obtained from teachers' focus group discussion, lack of Braille skilled schools principals and lack of Braille teaching methodology skilled teachers, school promotion policy were other challenges that contributed to the poor Braille skills of students.

6.2. Conclusions

This study was designed to answer three specific questions. Based on the findings discussed so far, the following answers were found.

Braille reading skills are the vital issue in education especially in schools for the blind. However, this study indicated that most of the students participated in this study could not read the great majority of English Braille words correctly. Furthermore, oral reading rates of those students were very slow and by far lower than the expected reading rate. English Braille Reading Skills of the students participated in the study were found to be poor and their reading rate were very slow. But comparatively, those students read more percentages of Afan Oromo than English Braille words as the independent sample t-test showed statistically significant difference between them.

A Braille skill on writing is also equally important as reading. Regarding the Braille writing rates in wpm, all students participated in the study wrote a maximum of 6 wpm. Not only the rate, but also English Braille writing skills of students was decreasing (57.14% to 20.51%) as students' grade level increased from 2 to 4. English and Afan Oromo Braille writing skills of most of the students participated in the study showed a large gap both in writing the words correctly and in rates of writing the words. Using independent samples t-test, the large skill gap of students' in Braille writing did not significantly differ whether they were writing in English or Afan Oromo.

The study also indicated that unarranged sittings and desks in classrooms, uncomfortable arm chairs in the classrooms for Braille students, inadequate resources like storybooks, textbooks,

flashcards, Braille typewriters, lecture method delivery approach (with no practices), uncomfortable classroom environment for Braille teachers and students, students' lack of awareness and support in Braille reading and writing activities, disorganized SNE resource center Furthermore, the challenges also include inappropriate height of chairs in the class, learners' lack of experiences in using their fingers during Braille reading, un-relaxed elbows of some students and students' lack of experiences in slightly bending their fingers in touching Braille dots, school promotion policy, teachers' practices in delivering Braille exams and their feedbacks orally, lack of Braille skilled school principals and lack of Braille teaching methodology skilled teachers.

6.3. Recommendations

Based on the findings of the study, the following recommendations were forwarded to improve students' Braille literacy skills and help them overcome challenges that they face in Braille skills.

1. Since students' Braille reading and writing skills were found to be low, the future will be not promising for Braille skills. Therefore, to enhance Braille skills and teaching methodology in school, trainings must be given for Braille teachers.
2. All school teachers and principals should be aware about Braille teaching and have professional development opportunities on Braille skills.
3. Schools for the Blind should assess and identify factors that affect students' Braille reading and writing skills and work to quit them.
4. To enhance Braille reading and writing skills, schools need to provide more skill trainings, sufficient learning support, educational resources, teaching aids, organized classrooms and other required physical facilities in schools for the Blind.
5. To reduce Braille literacy gaps in the school all stakeholders must be Braille skilled and SNE professionals to be employed in the school.
6. Due to lack of awareness and professional skills in Braille skills, most of the teachers and school principals are not fully equipped and qualified to teach Braille and manage in schools for the Blind. Thus, Special Needs Education teacher training colleges and universities need to give a great emphasis on Braille skills when training primary school teachers and principals.

7. There must be clearly organized and recognized Braille curriculum to provide Braille skill gaps in the school.
8. This study was the first step of trying to assess students' Braille literacy Skills in Sebeta School for the Blind, further research should extend to inclusive education at large.

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8. APPENDICES

ADDIS ABABA UNIVERSITY

College of Education and Behavioral Studies

Department of Special Needs Education

Appendix A: Interview Guides for school Principals

Personal Information

A. Sex _____

B. Educational qualification _____

C. Field of study _____

1. Number of teachers in the school. _____

Male _____, Female _____ Total _____ and blinds from total _____ M____ F____

2. Teachers Braille in the school.

Male _____ Female _____ Total _____ and blinds from total _____

3. Number of teachers in school that can read and write Braille?

Male _____ Female_____ Total _____

4. Qualification of Braille teachers in the school?

_____

_____

_____

5. At what age do you accept children with visual impairment?

A, 4-6 B, 7-10 C, 11- 15 D, other (_____)

6. At what level children start to learn Braille literacy skills?

A, Kindergarten (0 class) B, Grade one C, Grade Two

7. Is there Braille Syllabus and Books to teach Braille literacy in the school?

A, yes B, no

If no how Braille teaching is going?

_____

_____

_____

8. What is your school promotion policy or criteria for Braille learners to the next grade? What are the school criteria to ensure the learner's literacy competence when they complete grade? Please explain!

_____

_____

9. Is there refresher training or in-service training for Braille teachers?

A, yes B, No
If yes, please explain _____
10. Is there basic Braille training program for all teachers in your school?
If yes, please explain _____
11. What about Braille teaching materials accessibility to teach Braille literacy skills in the school?
_____

12. What is the general method the school uses to give exam?
13. How learners practice the skills in their day to day life and what challenges they face? Please explain!

14. If you have any other opinion to add, you are welcome!
_____
_____

Appendix B: Interview Guides for Braille Teachers

Personal Information

A. Sex _____

B. Educational qualification _____

C. Field of study _____

D. Service in years to work with the school _____.

1. Is there time and grade allocated for teaching Braille skills in the school?

A, yes B, No if yes, is it adequate to improve the learners literacy skills?

_____

_____

2. Do you have syllabus and book to teach Braille? A, yes B, no

If no, how do you teach and evaluate the learners?

_____

_____

_____

3. In which procedure is that finger use technique, object identification, associating name and object, improving finger sensitivity…… are developed?

4. What is your school promotion policy or criteria for Braille learners to the next class (grade)?

5. What are the Braille teaching materials you have in your school and how you use all of them?

6. Are the students efficient enough to use Braille Grade 1, Grade 2 Braille contraction according to their grade? (Do they have skill of handling any literary Braille code transcription independently…?) If not explain the challenges they face in learn?

7. Are you employed as a Braille professional and to teach the skills? Please explain!

8. What are the opportunities and challenges there to improve Braille literacy skills in the school?

9. What the learners' interest to use Braille Perkins, slate and stylus in class and out of the class?

10. What are the opportunities learners have to practices the skills in their day to day life?

11. Is there pre-grade (O class) program? If not explain its impact on skills!

12. How the school gives exam? Orally or written form?

13. What intervention measures has your school put in place to enhance the learning of Braille in your school?

14. What do you think about the characteristics of fluent Braille readers and writers? Please explain

15. If you have any other opinion to add, you are welcome.

Appendix C: Interview Guides for School Resource Center Coordinator

Personal Information

A. Sex_____

B. Educational qualification_____

C. Field of study_____

D. Service in years at schools for children with visual impairment in SNE resource room _____

2. What is your duty to support the students and teachers to improve their Braille literacy skills?

4. What kinds of Braille materials are available in the center and how the teachers and students interested to use?

3. Are you skilled enough in manipulating different Braille teaching devices in the school?

4. Do you have schedule of the center to give services to the students and the teachers? Please explain!

8. As a center coordinator what is your plan to improve the skills?

9. What opportunities do learners have to practices the skills in their day to day life?

10. Do you think the learners face challenges associated with Braille skills? Please explain!

11. If you have any other opinion to add, you are welcome.

Appendix D: FGD Guide Questions for Students

For grades 3 and 4

1. Are you interested in using Braille contraction? If no, why not? And if yes why you say yes?
2. What are the challenges you face to improve your Braille literacy skills? (Considering teachers, students, accessibility of Braille materials, time, classroom arrangement ….)
3. What are the challenges that you face to learn all subjects independently?
4. Are you interested to take exam in written form? Why?
5. What opportunities do you have to practices the skills out of the classroom?
6. Most of the time how you study your lessons? By reading or audio listening?
7. If you have any other opinion to add, you are welcome?

Appendix E: FGD Guide Questions for Braille Teachers

1. Do you have Braille syllabus or manuals? If not, what is your guide?
2. All Braille users can teach Braille? If yes, why and if not why?
3. From Braille and audio which one is more important in the life of blind learners?
4. How you assess the reading techniques of learners? (fingers use, holding slate and stylus, using Braille book …)
5. What are the commitments expected from blind student to improve the skills?
6. If you have any other opinion to add, you are welcome?

Appendix F: Classroom Observation List Focus on Reading

Before Reading		
Focused points	Yes	No
The chair has the right height (the feet need support).		
The table has the right height (the student's elbows should be a little higher than the top of the desk or table being used)		
A finger warming up has been done before beginning.		
The student orientates him/herself with a flat hand across the page.		
Sitting position while reading		
The student sits straight up		
The book is well-positioned (body centered)		
The shoulders are relaxed		
The elbows are relaxed and positioned down to the body		
Both feet are next to each other		

Reading technique		
The index fingers are parallel to each other		
The student uses six fingers or eight horizontal on one line		
The fingers are slightly bended		
Thumbs are downwards		
The students shows no vertically regressive hand movement		
The student uses very little pressure when touching the Braille dots.		
On demand, the student can read a text with only the right hand		
On demand, the student can read a text with only the left hand		
The student utilizes a two handed reading technique in which the left hand locates the beginning of the next line, while the right hand finishes reading the previous line.		
The student is aware of the importance of a good reading technique to improve the reading speed		
Planed teaching strategies		
Class work given and checked by reading the work of students		
Students answering questions by reading from their book or short note		
chances given to students to read and answer questions		

Appendix G: Classroom Observation List focus on Writing

Writing resources	Available Yes/No	Condition Good/Bad	Adequacy Yes/No
Slate and stylus			
Braille papers			
Class text book			
Sitting arrangement			
Size of desk			
Classroom arrangement			
Writing Activities			
Taking short notes			
Writing classwork			
Planed teaching strategies			
Some feedbacks given on writing by teacher			
Homework done by written form			
Homework checked by reading from paper written in Braille,			
chances given to students to write and answer questions			

Appendix H: Teaching Observation
Grade 1

Focused points	Yes	No
There are tactile teaching aids focused on Braille codes		
There are flash cards focused on Braille codes		
Learners get chance to touch and identify models of Braille codes		
Learners individually supported		

Appendix I: Braille Reading Test for grade 4

(Grade II Braille (Contracted Braille))

Dear students read the following text

Use Your Time Wisely

There are 24 hours or 1440 minutes in one day. Because you have many activities to do, you must plan your day if you want to be successful. Some important activities include attending classes, revising your lessons, playing with friends, helping family and getting sleep.

As a student you should pay attention to your studies. Start revising your notes from the beginning of the school day. Set a program for your daily activities. Plan and study at regular times every day. Pay attention to the amount of time you study and give enough time to all subjects.

(Taken from English for Ethiopia, Grade 4, student textbook, page 20)

Braille Reading Test for grade 4

(Grade I Braille (Un-contracted Braille))

Kabajamoo barattootaa dubbisa Afaan Oromoo kanniin dubbisaa!

Irreechi ayyaana uummanni Oromoo kabajudha. Duudhaan kun sirna Waaqa galateeffannaa fi kadhannaati. Innis irreecha malkaa fi irreecha tulluu jedhamuun bakka lamatti qoodhama. Ayyaanni kun waggaatti waktiilee birraa fi arfaasaa kabajama.

Irreechi malkaa yeroo birraan bari'u malkaatti ba'amee irreeffatama. Innis Waaqa bacaqii gannaa baasee booqaa birraan isaan gahe galateeffachuuf raawwatama. Gama biraatiin irreechi tulluu waktii arfaasaa keessa tulluu irratti kabajama.ayyaana kana irratti ammoo Oromoon bubbee, qaqawwee fi rooba yandoo akka isarraa qabu Waaqa kadhata.

(Taken from, Afan Oromo Student Book, grade 4th page 9)

Braille writing Test for grade 4

(Grade II Braille (Contracted Braille))

Dear students listen and write the following sentences

1. Who is that person?
2. That is my aunt.
3. Where does she live?
4. She lives in Harar with my grandparents.
5. Does she have a child?
6. No, she is single and only 19 years old.

(Taken from English for Ethiopia, Grade 4, student textbook, page 45)

Braille writing Test for grade 4

(Grade I Braille (Un-contracted))

Kabajamoo barattootaa himoota Afaan Oromoo kanniin barreessaa!

1. Iftuun guyyaa ayyaana irreechaa uffata bareedaa uffattee Hora Harsadii deemti.
2. Ishiin aadaa ofii waan jaallattuuf waggaa waggaan irreecha hin haftu.
3. Aadaa ofii beekuun ofbeekuu akka ta'e hiriyoota ishiitti dubbatti.

(Taken from, Afan Oromo Student Book, grade 4th page 14)

Appendix J: Braille Reading Test for grade 3

(Grade II Braille (Simple Contracted Braille))

Dear students read the following text

Clothes people wear on holidays

Clothing has connections with holidays. People wear special clothes to mark themselves. For example, on Ethiopian New Year, which is celebrated at the beginning of September, most Ethiopian prefers to dress in the traditional clothes made of cotton. They do so because they feel that wearing addition clothes make holidays more colorful and interesting.

The types of clothes people wears for holidays vary from place to place, and from culture to culture.

(Taken from English for Ethiopia, Grade 3, student textbook, page 33)

Braille Reading Test for grade 3

(Grade I Braille (un-contracted Braille))

Kabajamoo barattootaa dubbisa Afaan Oromoo kana dubbisaa!

Qaro-dhabeessa Gamna

Namichi qaro-dhabeessi tokko maallaqa hedduu qaba ture. Innis maallaqa kuufate kana nama amanee bira kaawwatu waan dhabeef qalqallootti qalqallootti naqee boolla qotee awwaallate.

Yeroo inni maallaqicha awwaallatu ollaan isaa arge. Qaawwa/uraa manaatiin yeroo ilaalu waan tokko akka awwaalaa jiru hubate. Qaro-dhabeessichi deebi'ee galuu isaa mirkaneeffatee boollicha haadhee yommuu ilaalu, maallaqa arge. Maallaqichas fudhatee gara mana isaatti deebi'e.

Qaro-dhabeessichis oolee bulee yeroo maallaqa awwaallate sana ilaalu, bakka kaa'ee dhabe.innis kan najalaa fudhate ollaa koo ta'uu hin oolu jedhee shakke. **…**

(Taken from, Afan Oromo Student Book, grade 3 page 46)

Braille writing Test for grade 3

(Grade I Braille (un-contracted Braille))

Jaldeessaa fi Kanniisa

Kabajamoo barattootaa dubbisa kana Afaan Oromootiin barreessaa!

1. Jaldeessi tokko yeroo hunda kanniisa jalaa damma hatee nyaata ture.
2. Dammichi itti mi'oofnaan fixuu barbaade.
3. Kanaaf isaan gowwoomsuu barbaade.
4. Kanniisaan,"isin hin tuquu fira taana" jedheen.
5. Kanniisnis,"haa ta'u ni firoomna" jedhan.
6. Jaldeessichis walbaruuf jabinaaf laafina isaanii gaafate.
7. Kanniisnis irratti baranii, "nuti galgalaaf ganama cimoodha. Ati hoo?" jedhaniin.
8. Jaldeessis waan isaan gowwoomsu itti fakkaatee "funyaanii fi dhallaan koo akka sibiilaa jabaata" jedheen.

(Taken from, Afan Oromo Student Book, grade 3 page 97)

Braille writing Test for grade 3

(Grade II Braille (Simple contracted Braille))

Dear students write the following words

1. Cook	6. Prepares	11. The
2. School	7. Grows	12. English
3. Directors	8. Using	13. come
4. Drivers	9. Table	14. Sentences
5. Teacher	10. Students	15. With

(Taken from English for Ethiopia, Grade 3, student textbook, page 46)

Appendix K: Braille Reading Test for grade 2

(Grade I (Un-contracted Braille))

Dear students read the following text

Helping Mother

My brother and I love our mother. We are big enough to help her. We help her sweep the floor. We help her cook. We help her wash the dishes. We help her make the bed. We help her set the table. We help her fold the clothes. We help her feed our baby brother, too. We like to help our mother.

(Taken from English for Ethiopia, Grade 2, student textbook, page 54)

Braille writing Test for grade 2

(Grade I (Un-contracted Braille))

Dear students write the following text

We like our school

Kedir, Henok and Hadan walk to school together. It is Monday, the first day of the school week. "I like Monday," says Kedir. "it is the best day of the week." Henok ask,"why is Monday the best day?" "We go back to school on Monday," Kedir replies. "That is true," said Henok.

(Taken from English for Ethiopia, Grade 2, student textbook, page 103)

Braille Reading Test for grade 2

(Grade I (Un-contracted Braille))

Kabajamoo barattootaa dubbisa Afaan Oromoo kana dubbisaa!

Gaalaa fi Farda

Gaallii fi Fardi horii manaati. Lamaanuu miila afur afur qabu. Gurra lama lamaa fi eegee tokko tokko qabu. Isaan lamaanuu geejjibaaf nama gargaaru. Fardi marga dheeda. Gaalli ammoo baala mukaa nyaata. Aannanii fi foon Fardaa namni itti hin fayyadamu. Kan gaalaa ammoo namoonni ni sooratu. Gaalli gammoojjiitti argama. Fardi ammoo baddaa fi badda dareetti argama.

(Taken from, Afan Oromo Student Book, grade 2 page 45)

Braille writing Test for grade 2

(Grade I (Un-contracted Braille))

Kabajamoo barattootaa jechootaa Afaan Oromoo kanniin barreessa!

1. Sangaa
2. Hoolaa
3. Nama
4. Barsiisaa
5. Kitaaba
6. Goota
7. Diina
8. Saba
9. Ganda
10. Biyya

(Taken from, Afan Oromo Student Book, grade 2 page 55)

Appendix L: Reading Test for Grade One Students
(Grade I (Un-contracted Braille))

Dear students read the following English words

1. Dog
2. Cat
3. Rut
4. Fat
5. Ball
6. Man
7. Boy
8. Book
9. Pen
10. Egg
11. Door
12. One
13. Can
14. Run
15. two

(Taken from English for Ethiopia, Grade 1, student textbook)

Braille Writing Test for grade 1
(Grade I (Un-contracted Braille))

Dear students write the following English words

1. Cat
2. Donkey
3. Apple
4. Leg
5. Ball
6. Milk
7. Pen
8. Window
9. Hat
10. Rat

(Taken from English for Ethiopia, Grade 2, student textbook, page 46-57)

Reading Test For grade one students
(Grade I (Un-contracted Braille))

Kabajamoo barattootaa jechoota Afaan Oromoo kanniin dubbisaa!

1. Mana
2. Isa
3. Shan
4. Yoom
5. Sa’a
6. Re’ee
7. Muka
8. Odaa
9. Lafa
10. Eda
11. Ija
12. Abbaa
13. Tokko
14. Mataa
15. Gurra

(Taken from, Afan Oromo Student Book, grade 1)

Braille writing Test for grade 1

(Grade I (Un-contracted Braille))

Kabajamoo barattootaa jechootaa fi qubeewwan Afaan Oromoo kanniin barreessa!

1. Gaafa
2. Harree
3. Saree
4. Mucha
5. Uffata
6. Odaa
7. Abbaa
8. Haadha
9. obboleessa
10. Barumsa

(Taken from, Afan Oromo Student Book, grade 1)