



**BRaille READING PROFICIENCY
AMONG LEARNERS WITH VISUAL IMPAIRMENTS:
TEACHERS' STRATEGIES AND LEARNERS' READINESS
IN AKROPONG SCHOOL FOR THE BLIND, GHANA**

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Abstract:

Globally, braille remains the main medium of reading and writing for individuals with visual impairment, specifically for the literate blind. The study sought to disclose the factors that have affected and continue to affect braille reading proficiency among beginners in Ghana. The study was carried out at Akropong School for the blind which is one of Ghana's oldest and largest school for learners with visual impairment. The study adopted a descriptive survey design. A random sample of twenty girls and twenty boys were selected for the study. Five teachers who teach reading and writing of braille participated in the study. Three lessons in English language were observed in progress in three separate classrooms in the school. The study revealed that there were no arrangements put in place to train beginners in reading readiness skills before introducing them to braille reading. The study indicated that there were no clear ways of demonstrating how teachers approached the teaching of braille.

Keywords: visual impairment, braille, slate and stylus, reading readiness, finger dexterity

1. Introduction

The education of the blind and other learners with vision defects has not been without problems. One of these inhibiting factors has been the lack of universally accepted medium of communication in terms of writing and reading because the codes used vary significantly. Notwithstanding the controversy, braille remains the number one communication mode for persons who are blind. What is braille? It is a system of embossed signs which are formed by using combinations of six dots, arranged and numbered 1, 2, 3, to the left and 4, 5, 6 to the right. A dot or a combination of two or more

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dots would represent a letter, a word or a statement (Abosi & Ozoji, 1985). The signs are embossed on special paper, manually by hand with a tool called stylus which is pressed into the paper through holes in a perforated frame, or by using a braille writing machine, such as a Perkins or Marburg braille machine, or by an embosser connected to a computer. A simple sign, for example a sign denoting a letter, occupies one space or "cell". A blank space is left between words, and between the end of one sentence and the beginning of the next. Perkins braille machines are quite ideal for writing but rather expensive. The slate and stylus on the other hand are a cheaper alternative, but very strenuous when using them to write braille. However, when using the slate and stylus, the user writes from right to left, thus contradicting the left-right eye orientation and coordination. The user turns the paper when it comes to reading what has been written. This makes the process rather slow. This is also cumbersome and more so to the young blind users (Sharon & Rosanne, 1998). It has been observed that production of reading materials in a form usable by persons with visual impairment is usually slow, tedious and quite costly. It can be deduced from the above discussion that visual impairment could have profound effects on the child's academic work. As a result, educational institutions consider the special needs of persons with disabilities in respect to the entry requirements, curriculum, tests and examinations, auxiliary services, use of school facilities, class schedules and other academic activities. In Ghana, similar provisions are made in all parts of the country for integrated system of educating learners with visual impairment.

1.1 Purpose of the study

The purpose of this study was to identify teacher instructional strategies and learner preparedness that are typically associated with the teaching and learning of braille reading to increase braille reading proficiency of the beginners in Akropong School for the Blind.

2. Literature review

2.1 Principles of reading instruction

Currently in schools, many learners struggle with learning to read. Many teachers and parents confirm that reading failure has exacted tremendous long-term consequence for children's development of self-confidence and motivation to learn, as well as for their later school performance. While there are no easy answers or quick solutions for optimizing reading achievement, an extensive knowledge base now exists to show us the skills children must learn in order to read well. During recent years, methods of reading instruction have become more student centered, fostering not only knowledge and ability but also independence (Grace, 2005). It is vital for students to have a strong knowledge base when they begin to learn to read. Children who do not have a strong knowledge of the environment and concepts about print would experience reading problems which might last for a long time.

2.2 Methods of teaching reading

There are a number of methods that teachers employ in teaching reading to beginners. Among the most commonly used are the phonic method, look and say, learning experience approach and the context support method.

2.3 Phonic method

The phonic method is probably the best known and widely used method to teach reading and writing in the English language. During phonics instruction, children are taught the relationships between the letters (graphemes) of written language and the individual sounds (phonemes) of spoken language (Boison, 2008). Learners are taught the alphabet first, the names of the letters and the sounds they make. Once they have learnt the letter sounds, they would begin to blend two letters together to make simple words, then three letters, then four and so forth. For children to learn the phonic method they need phonically written books using regular words that are interesting to young children. Each word is sounded out by the child in order to achieve the highest-level of outcome. Learning the sounds and their blends may be disinteresting for young children, so the teacher should keep it short and entertaining. Often the children are so busy concentrating on sounding the words and blending the sounds that they do not learn the meaning of the word, making it quite boring for them (Griggs, 2000). Teachers should therefore ensure that they explain the meaning or expound on the word to keep interest and enthusiasm for learning. When using the phonic method, most children learn to read basic words and sentences within three to six months. The method supplies the learners with tools to expand their vocabulary (Griggs, 2000).

2.4 Look and say method

With the look and say method, children learn to recognize whole words or sentences rather than individual sounds. In this method of teaching reading word cards or sentence cards usually accompanied by pictures are mostly used. Children look at a word which the teacher sounds and in turn repeat the word. It is recommended with this method to use whole short sentences rather than individual words. The teacher writes a short sentence representing the picture displayed, says the sentence and asks the child to repeat it while pointing at each individual word as he/she repeats what the teacher says. By use of work cards, the teacher can create many different sentences again and again (Njue, Aura, & Komen, 2014).

2.5 Learning experience approach with context support

This method uses learners' own words to help them read. Learners may draw a picture of father in the garden. The teacher writes underneath the drawing 'father is working in the garden'. The teacher continues to collect drawings and the learners make and write short sentences about them. Some teachers use this method as a first approach to reading in order to enable their learners understand that what they have drawn and what is written is a form of communication. The language experience approach supports the

child's concept development and vocabulary growth while offering many opportunities for meaningful reading and writing activities through the use of personal experiences and oral language (Griggs, 2000). As beginners who are learning to read, it is important to choose books that really interest the children. If boys like cars, the teacher should choose a book with pictures and simple words about cars. This would sustain their interest and they would enjoy learning with the teacher. On the other hand, if girls like dolls, then the teacher gets a book with pictures of different types of dolls and simple words. Griggs (2000) noted that this method encourages enthusiasm because children are actually looking at something they can relate to. In the case of pupils with visual impairments, the object should be given to them to explore concretely.

2.6 Differences between braille reading and print reading

Various research studies by Kosman and Castellano (1997), Harley, Truan and Sanford (1987) and Holbrook and Koenig (1992) agreed that in the absence of vision, it was important to give a pupil sensory training to the remaining senses like the sense of touch and the sense of hearing so that the non-sighted learner might use them as sources of information. Generally, reading is important for three reasons, the first being a tool for learning. Once a child is able to read, he can do much more learning on his/her own. On the other hand, a child with reading difficulty will be handicapped in all other subjects and will continue to perform poorly until the problem is rectified. Second, reading is an indispensable skill in terms of entertainment, for one can experience ideas, adventures, feelings and situations that are expressed in the form of print which are not available in everyday life. Third, reading is also an important means by which people obtain information about the environment and make use of it (Brunner, 1996).

The most basic and obvious way in which reading braille differs from reading print is the sensory modality used. Braille readers read by touch using the sensitive tips of the fingers and print readers read visually. Kusajima (1974) cited by Njue, Aura, & Komen (2014) conducted a comprehensive investigation on both tactile and visual reading. The findings are still valid, and they are important for teachers to consider in understanding the two processes. Kusajima summarized the different characteristics of efficient visual and tactile reading as follows: Good visual reading is characterized by a small number of short regular pauses, no regressive movements and well-adjusted return sweeps combined with a deep and accurate understanding of the meaning of a text. Good braille reading is characterized by few zigzag, up-and-down, or fluttering movements, uniform pressure of the finger on the page, no regressive movements and well-adjusted movements between lines with the help of both hands combined with a deep and accurate understanding of the meaning of the text. Kusajima's findings demonstrated that perception is tied to movement in braille reading. In fact, without movement, perception cannot occur. Subsequent research also demonstrated the key importance of an individual reader's tactile perceptual abilities in developing good braille reading skills, such as how the reader moves his or her hands (Mangold, 1978; Wormsley, 1978). This difference in perception from print reading has significant implications for the skills

braille readers need to learn, and for teachers to ensure that their instructional strategies are consistent with the way braille readers process information (Rex, Koenig, Wormsley, & Baker, 1994).

During print reading, the teacher pays little attention to the mechanics of reading, that is, the movements of the eyes but the braille teacher must help students develop good hand movements if they are to become efficient readers. Teachers must also be able to recognize inefficient hand movements and learn how to eliminate them and replace them with efficient ones. Many teachers think that they can teach tracking or the ability to follow a line of braille across the page and down to the next line, by itself. As a general rule, teachers should pay close attention at the beginning of braille reading instruction to teach the child how to move his or her hands on the braille materials and to construct materials that allow for movement across lines and characters in the manner of the most efficient readers (Kusajima, 1974). It is in the light of the above that the study sought to establish whether teachers took pains to train the young learners with visual impairments in reading readiness skills before introducing them to reading and writing braille. Olukotun (2003) postulated that reading readiness can be better introduced to pupils at primary four when at that level, the finer and larger muscles of the fingers are well developed for tactile exploration of raised dots on the paper. He added that the pupils should be introduced to symbols such as "A", "B", and word formation. Pronouns, conjunction, wordsigns and abbreviations can also be introduced.

2.7 Complexity of the braille code

Another difference between learning to read and write braille and print that affects the development of instructional programmes is the fact that braille readers have more symbols to learn than do print readers, and they do not learn all the elements of the code until long after print readers have learned theirs. However, the vocabulary in children's reading materials would not contain all of the braille contractions until they have reached a third-grade reading level. Conversely, providing materials at a first, second or third grade reading level may not ensure that the child would be able to recognize or interpret the braille symbols that do appear. In addition to the symbols, braille readers must learn rules of usage of the braille symbols that print readers do not have to contend with. This means that braille readers have an extended period of time during which they are still learning their literacy medium, while their sighted colleagues have moved on beyond learning their code. Again, the presence or absence of incidental learning is very crucial for children who are learning to read braille.

2.8 Approaches to teaching braille

It would be wonderful if all children and adults could learn to read in the same manner. In fact, children learn the skill in very many different ways, depending upon their inborn abilities, their experiences, and their motivation and interests. For that reason, every teacher must have knowledge of the major methods for teaching reading (Mousty & Beterlson, 1985). 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 using braille just as young sighted children learn to read using print. Both those with visual impairments and those with sight learn the meanings of symbolic representations (print and braille characters) and how those representations form words, sentences, paragraphs etc. which when put together communicate a unique message. Many teaching methods which work for sighted children could also work for children with visual impairments, possibly with some modifications. Choosing the method or combination of methods which best suits the learner's needs is critical to the students in learning to read (Holbrook & Koenig, 1997). Essentially, this study explored the teaching methods used by teachers of braille in Akropong School for the Blind in Ghana for learners with visual impairments. The analysis indicated that those teachers who used phonic method did not consider the learners with visual impairments. This was because while there were textbooks for learners with vision, there was no equivalent for those learners who used braille. During observation of a reading lesson, it was revealed that the teacher partly embraced phonic and look and say methods. During the look and say method, the teacher had flash cards with words and sentences which the learners were supposed to read after the teacher. Unfortunately, the children with visual impairment had to repeat the words and sentences without attaching any meaning to them since they could not see the pictures accompanying the words and sentences.

2.9 Reading readiness

In a study carried out by Mathews and Klaassens (1999) in some kindergarten classes in Britain, it was found out that reading readiness activities were not included in all instructional programmes. In some instructional programmes, reading was taught separately whereas in others it was part of the basic reading and writing instructions. The reading programme a teacher chose and modified, determined when and how he/she would handle reading readiness (Mathews & Klaassens, 1999). Language reading and writing skills began to develop in the first three years of life. The study further found out that parents, who began reading to their children early, taught the importance of that skill to the young readers. Children learnt to love the sound of language even before they were able to recognize printed words on a page. It was noted in the same study that reading books aloud to children stimulated and expanded their imagination and was the single most important activity for developing their literacy skills. Research has even shown that the human fetuses are able to memorize sounds from the external world by the last trimester (7-9 months) of pregnancy with particular sensitivity to melody; both music and language with high pitch and intonation, repeated, short in sequence and melodious (Gadagbui, 2012). This indicates clearly that children while waiting to be born are always ready for reading. Reading provides a quiet time to spend with the child and could be a bonding experience. Early exposure to reading could lead to a successful start of kindergarten, and it lays the foundation for future success in life. The same study contended that some instructional programmes approached reading readiness as a part of teaching beginning reading. In this case, reading readiness concepts are taught in

context as the teacher modelled reading and writing. During that period, great emphasis is placed on learning through observation. The teacher plays a major role and it is expected that learners gain quite a great deal through observation. The philosophy is based on the view that when learners are learning to read and write, they are not just learning a set of skills, but they are acquiring, a 'network' of strategies for operating on or with the text (Mathew & Klaassens, 1999). Learners are encouraged to take considerable responsibility for their learning and their pace is not forced but is geared to what they are comfortable with. Teaching/learning materials are critical in learning situations particularly for learners with sensory deficits (Njue, Aura, & Komen, 2014).

2.10 Reading readiness for learners with visual impairment

In the absence of vision, sensory training of the remaining senses like the sense of touch and the sense of hearing is important since these senses are used as sources of information. That should be included in the reading readiness programme. The findings in this study revealed that there were no reading readiness activities taught at the Akropong School for the Blind. This is an important area which is apparently being ignored. Meanwhile, a study by Marshall and Hunt (2002) revealed that it was of paramount importance that special attention be given to the development of tactual perception and listening skills before beginning to teach reading to a learner using braille. These are important pre-reading activities usually incorporated in reading readiness programmes for beginners.

Scholl (1986) observed that a greater amount of information is gained in a shorter period of time through the use of visual system than through any other sense organ. A visual impairment therefore places a child at a disadvantage in cognitive development particularly in areas of sensory stimulation, concept formation and communication. Various research studies (Mathew & Klaassens, 1999; Rex, Koenig, Wormsley, & Baker, 1994) had also agreed that in the absence of vision, it was important to give a pupil sensory training to the remaining senses like the sense of touch and the sense of hearing so that they might be used as sources of information. Such training should be imparted to learners before the introduction of reading/writing braille to prepare them for what they are to encounter later in life. In their study, Rex et al, (1994) observed that learners with visual impairments had to be taught to use touch, just like sighted learners are taught to use vision. A similar study by Hamsphire (1981) stressed that pupils with congenital loss of vision who had been taught tactual sense discrimination from very early ages usually did not have many problems with braille reading if they did not have any other complications. When children are not involved in reading readiness and pre-braille activities, they are bound to experience problems with finger dexterity and hand movement. Such was observed on class two children at the Akropong School for the Blind. One of the learners in the school used only the index finger to read. He read with the wrist on the material and rubbed on dots making them faint. The second learner also used one finger with the others hanging above the text. This method of reading got him

tired or discomforted from the wrist which he kept resting on the material after a short time. Generally, there was no uniformity in the way children in the class read braille.

During interview sessions, the teachers agreed that they did not usually prepare learners for reading braille. Learners explored the best ways of reading braille on their own. The young and newcomers depended on the adults. During braille reading, the teacher paid little attention to the mechanics of reading, which included, the movements of the hands and the fingers. The teacher of braille must help learners develop good hand movements if they are to become efficient readers. Mangold (1978) felt that teachers must also be able to recognize inefficient hand movements and learn how to eliminate them and replace them with efficient ones. A similar study by Lowenfeld (1983) also revealed that pre-reading instructions were given during pre-school years. During such instructions, learners were guided on the best ways to use fingers to read braille. Language reading and writing skills began to develop in the first three years of life. Children who are sighted are exposed as they are always seeing their siblings or parents reading and writing. Thus, by age three a sighted child is already scribbling and learning to hold reading materials (consciously or unconsciously). However, that is not the case with the child with visual impairments. In that regard, Mathews and Klaassens (1999) further suggested that parents of children with visual impairments should be supported to instill reading readiness skills in their children before they attained school-age. In another study, Buel (1996) found out that over-protected and under-stimulated children with visual impairments performed far below average compared to other children with visual impairments in gross and fine motor skills activities.

There are a number of mechanical skills that are unique to braille reading. These skills must be well-developed before placing emphasis on decoding of braille words, phrases or sentences. In that context, Mangold (1978) suggested that children with visual impairments should be involved in sorting and assembling activities, stringing beads, punching and sewing braille paper as part of pre-reading activities among others. Njue, Aura, & Komen (2014) posit that the beginning braille reader, like all beginning readers, must acquire the readiness skills associated with the actual reading process. An important prerequisite that all readers must have to be efficient and read with comprehension is a rich background of concrete experiences involving many objects, people, places, activities and cause and effect relationships. In addition, the child must have receptive and expressive vocabulary that correspond to his/her experiences. Each individual child must develop auditory skills of identification, closure, sequence, memory for stories, and discrimination. The young reader must be able to concentrate, exert self-control, and follow directions.

Another important readiness factor noted by Njue, et al., is motivation. They stated that during the pre-school years of 3 - 5, special attention should be given to 'readiness' especially in the area of language arts. If a child is visually impaired or seemed to be a tactual and/or auditory learner, attention should be given to the development of tactual perception and listening skills. If all sensory channels are afforded opportunity for development in the early years, the choice for learning/literacy media later can be

made much easier. The preschool years are critical times for a child who is visually impaired and can make the difference between success and struggle during educational experiences (Marshall, & Hunt, 2002). Mangold however, noted that training in the use of hands seemed neglected by teachers who often left children to discover for themselves. All students learning to use braille must acquire the following: tactual discrimination, finger dexterity, hand and finger movement, light finger touch and page turning skills.

3. Method

The study adopted a descriptive survey design to find out whether learners with vision loss were taken through any pre-braille reading skills prior to braille reading. The study also interrogated the methodology embraced by teachers in teaching braille to learners who were blind. Questionnaire and interviews were used for data collection. Three lessons were also observed. The study was carried out at Akropong School for the Blind, the oldest, and largest school for learners with visual impairment in Ghana. A random sample method was used to select the participants for the study.

4. Results and Discussion

4.1 Methods used in teaching braille at Akropong School for the Blind

Every teacher must have knowledge of the major methods for teaching reading. Teaching braille to young children with visual impairments is more than just teaching them the meaning of the braille symbols. Individual differences of the learners should be considered, and the teachers should therefore choose materials which maximally benefit individual learners. It was evident that some teachers in the school used one to one approach in teaching braille. Others used group method and others whole class approach. Mousty and Bertelson (1985) stressed that every teacher needs to have knowledge of the major methods for teaching braille reading. This is because children learn the skill in very different ways. Many teaching methods which work for sighted children could also work for children with visual impairments, possibly with some modifications. Choosing the method or combination of methods which best suits the learners' needs is critical to the learners in learning to read braille (Holbrook & Koenig 1997). In Grace's (2005) study, it was found out that in recent times, methods of reading instruction have become more learner-centered, fostering not only knowledge and ability but also independence. It is vital for learners to have a strong knowledge-base when they begin to read (Young, 1995). Individual attention is paramount when teaching braille to beginners just like any other practical subject.

4.2 Reading readiness and pre-braille reading skills at the Akropong School for the Blind

The findings revealed that there were no arrangements put in place to train children in reading readiness skills prior to reading braille. It was observed that the use of hands

training seemed to be relegated to the background, so the children use all manner of subterfuge to discover for themselves. Yet, it was important that for a child with visual impairment attention be given to the development of tactual perception and listening skills (Marshall, & Hunt, 2002). During the interview, one of the teachers confirmed that by stating, *“Reading readiness is an area we do not take serious we have not thought of teaching it because in the first-place time is very limited and also we do not teach only English language. We teach other subjects too using braille. So, we are left to concentrate on only the content of the curriculum, otherwise we would not finish the curriculum if we have to teach those things”*. Teachers who teach braille are not trained in the skills to be able to impart the same to their learners.

4.3 Issues of finger dexterity, arm movement, and eye coordination

From the findings it was evident that some children experienced problems with finger dexterity and arm movement while reading. That was also confirmed through the observation carried out in class three children of the school. In that class, five children were observed while reading simple three to four letter words. Three of the children observed seemed slower braille readers than the rest. One of them used only the right index finger to read. He read with the wrist resting on the material and rubbed on dots which made them faint. That slowed down the reading speed. Another child observed also used one finger (index) with the others hanging above the text. That made him tired from the wrist which he kept resting on the material before he could even finish reading a series of three letter words. The third child kept on interchanging the hands as he read. He could use his left hand and then switch off to the right before he was able to read the words. The other children had no reading materials. Two put their heads on the desks almost throughout the lesson. It was quite clear that teachers did nothing to alleviate problems of finger dexterity and hand movement. In fact, the teachers had not even thought of it as an area that needed some attention to improve on reading.

5. Conclusion

Reading is a liberator that brings man out of ignorance, superstition, poverty and marginalization. Reading is the creative centre of a brilliant mind. However, the study revealed that reading readiness was an area completely ignored by teachers of learners with visual impairments, yet those learners had unique learning needs as they learned to read. The teachers would benefit from considering those needs and identifying methods and techniques useful to address them. Consistency, encouragement, optimism, and other teacher traits and behaviours often make the difference between success and failure in learning to read and so ought to be encouraged. On both reading readiness and teaching methods, it is appropriate to consider what is required for sighted children and how it may be adjusted to the special needs of a child with visual impairment. Readiness is an important aspect of any learning. It depends on all previous experiences. As many

researchers have noted, reading methods useful for learners who are sighted could also be modified to work for those with visual impairments.

5.1 Recommendations

A successful instruction for learners with visual impairment and their effective participation in class depends largely on their proficiency in reading and writing braille. This would enable learners with visual impairment who uses braille as their mode of communication search for information on their own. The following recommendations are therefore made to support the findings: Teachers have to know their pupils well in terms of their existing skills and knowledge, their interest, and their previous experiences in order to teach them as individuals during braille reading activities. Furthermore, arrangements should be put in place to train children in reading readiness skills before introducing them to reading braille. Also, pupils have to be helped to establish a sense of personal meaning about the reading activities which they are engaged in. Finally, teachers should put measures in place to prepare pupils with the appropriate finger dexterity, and arm movement skills as some children experienced problems in finger dexterity and arm movement while reading.

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