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Teaching Reading and Writing in Mother Tongue
for Children with Visual Impairments

Abstract

Language plays an important role in the lives of human beings by means of communicating, expressing thoughts and describing experiences. Language pedagogy is the science that aims at education, teaching and implementation of the spoken and written speech. If we are dealing with children who have special educational needs, e.g. visually impaired then the teaching is called special education. The loss of vision significantly affects people in various activities. Finding alternative methods of communication is important. The method braille based touch allows to visually impaired people to write and read. The key element of writing is the exastigmo (six dots). The braille method is linguistically a faithful reproduction of written language. The reading is based on the same sounds, the meanings of the words, the grammar and the semantics which are necessary for the understanding of written texts in any language.
Keywords: Visual impairments, reading, writing, mother tongue.

Introduction

The cultivation of language and the linguistic ability of the child has always been the basis of the analytical program of elementary, high school and college students, because the language is the main instrument teaching any lesson.

The language plays an important role in the lives of human beings. "The center of life and of learning" (Emmitt, M. - Pollock. J. , 1991). Language and society relate directly between them, after all known human societies have "Language" (Wardhaugh, R. , 1992).

Through the language the person communicates with other fellow human beings; makes comments, experiences, concerns; expresses feelings, attitudes, desires; views requests and claims rights; acquires and maintains values in various fields; explores the surroundings and generally understands better the world in which he lives (Bain, R. et al. , 1992).

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The language development process is complex, moving gradually. Positive role in this area can have many bodies: the family, the school, the support from family/friends and the media. Each of the operators affect the linguistic development and the development of the child.

School plays, usually, the most important role, because kids are always helped to learn the language in a variety of forms, e.g. to learn grammar and syntax, to widen the vocabulary, to learn to read and write (Wilkinson, L. C. , 1982). At school children not only acquire knowledge by means of language but also of communication (Halliday, M.A. - Hasan, R. , 1985).

Out of all the language aspects, production of written speech is more complex and more difficult than the production of speech. It is a complex and difficult activity requiring the pupil the combine language, cognitive, and communication skills. Equally difficult is the teaching of it, as it requires by the instructor educational knowledge and skills in order to establish effective learning environments and teaching.

Educational design implements the "School for all". The new trend of the training referred to in an effort to recognize the Individual differences among pupils are taken into account during the educational process. There is a trend toward greater interaction and osmosis between special and general education, with a view to creatively unify them. We believe that the time has come for the special education to provide and exchange roles, values, achievements with the general education.

By integrating children with special educational needs in schools of general education, the last one can be enriched through joint research programs required by the new trend, with new approaches to teaching (e.g. differentiated teaching), with new groups of scientists on a theoretical and practical level, with new organizational, administrative and modern scientific infrastructure.

Teaching Reading And Writing In Mother Tongue For Children With Visual Impairments

Pedagogy aims at teaching and implementing spoken and written language and at ameliorating linguistic difficulties affecting adversely performance and social behavior through the organized classroom. It also considers the production of speech and the procedures of getting to use the mother language (speaking, understanding, reading, writing) (Drakos J. , 2003).

But if we are dealing with children who have special educational needs e.g. visually impaired (partial or total blindness) then the teaching is called special education.
The loss of vision will have a significant effect on the way in which a person performs various activities, receives the information and generally communicates.

To find alternative communication methods is essential for the independent living. The sense of touch was that, as it appeared from early, that could substitute for the vision, as basic sense for reading and writing.

The desire of people with blindness for the programming and use of reading and writing was strong and led them at a very early age to devise and use various writing systems. With primitive systems they managed to educate themselves. But these systems were difficult to spread and did serve only the needs of their inventors.

For the education of all blind it was necessary to find a writing system which would be easy and simple. The development of systems for touch reading and writing starts at the end of the 17th century has changed the lives of the blind, providing for the first time independent means for literacy, communication and training. Since then they have introduced various forms of reading and writing, but a few of them have survived.

Method Reading and Writing Braille

The code Braille is the method by which the visually impaired can read and write. Inventor of this code was Louis Braille. Braille was born on 4 January 1809 in Coupvray , France, near Paris. He was became blind at the age of three years.

The Braille system has prevailed among other similar ones. When the Braille was introduced, the alphabet was a rejected by teachers of the era, with the "cheap" excuse that teachers without visual disability would not be able to read the books of the blind, and that would cause problems in the teaching profession. This view did not prevail and the Braille was loved by the blind readers.

They found that the reading of braille was faster and more efficient. The key element of writing is the exastigmo, which consists of six dots per three in two columns.
For convenience the dots of the left-hand column are numbered from one to three and the right-hand from four to six. The characters of Braille code are forms of dots.

The code consists of those forms which are formed by combinations of dots of exastigmo. As cell referred to the framework within which formed the templates. By removing from the exastigmo one to five dots without changing their distances, creating sixty three combinations, which are the characters of the code. (The code, shall be considered and the empty character (no dot), which is used to indicate the space between words or wherever else needed.

Figure 1.

1 . . 4
2 . . 5
3 . . 6

The fitting of Braille characters in a typical page is similar to that of common characters in sighted writing.

The characters in Braille writing are placed in horizontal lines and are read from left to right. The lines are the lines that appear on a typical page, from the top to the bottom of this. The presentation of braille similar to the sighted writing provides to the readers of the code the advantages which they hold and the optical readers. So the reader can use features of the text, such as paragraphs, headings and page numbers to be used easily in different parts of the text.

The Braille was introduced in Greece in 1958. The Ministry of Education has established Braille system as the official alphabet for the education of Greek blind, as shown in tables 2 - 4.

Table 2.

GREEK LETTERS	BRAILLE SYMBOL	DOTS
A	⠁	1
B	⠃	1,2
Γ	⠛	1,2,4,5
Δ	⠙	1,4,5
E	⠑	1,5
Z	⠵	1,3,5,6
H	⠜	3,4,5
Θ	⠹	1,4,5,6
ι	⠊	2,4
κ	⠅	1,3
λ	⠇	1,2,3
μ	⠍	1,3,4
ν	⠝	1,3,4,5
ξ	⠭	1,3,4,6

Table 2 continue		
<u>GREECK LETTERS</u>	<u>BRAILLE SYMBOL</u>	<u>DOTS</u>
ο	�	1,3,5
π		1,2,3,4
ρ		1,2,3,5
σ		2,3,4
Τ		2,3,4,5
Υ		1,3,4,5,6
φ		1,2,4
χ		1,2,5
ψ		1,2,3,4,6
ω		2,4,5

Table 3.

<u>DOUBLE VOWELS</u>	<u>BRAILLE SYMBOL</u>	<u>DOTS</u>
αι		1,2,6
αυ		1,6
ει		1,4,6
ευ		1,5,6
ηυ		1,2,5,6
οι		2,4,6
ου		1,3,6
υι		1,2,4,5,6

Table 4.

CHARACTERS	BRAILLE SYMBOL	DOTS
,	·	2
:	∙∙	2,5
(· ·	⠆	2,3
·	⠦	2,5,6
¿	⠰	2,6
!	⠲	2,3,5
-	∙∙ ∙∙	3,6 3,6
-	∙∙	3,6
—	· ∙∙	6,36
'	·	3
…	· · ·	6,6,6
´	·	5
(	∷	2,3,5,6
)	∷	2,3,5,6
«	∷	2,3,6
»	∷	3,5,6
[	∷	1,2,3,5,6
]	∷	2,3,4,5,6
{	∷	1,2,3,4,6
}	∷	1,3,4,5,6
*	∴ ∴	3,5 3,5
@	· ·	4, 1

Most letters of Greek braille are identical to the alphabet of English, i.e. are formed with the same combination in dot exastigmo,

Table 5.

a	b	c	d	e	f	g	h	i	j	k

l	m	n	o	p	q	r	s	t	u	v

w	x	y	z

Small English characters

A	B	C	D	E	F	G	H	I	J

K	L	M	N	O	P	Q	R	S	T

U	V	W	X	Y	Z

Capital English characters

For example, the English letter "a, d, f, k, m, p" have the same combination as the corresponding Greek letters. Also, we can see that the correspondence between the letters are mainly audio (Papadopoulos 2005).

Table 6.

Πίνακας 3
Αντιστοιχία αγγλικού και ελληνικού συστήματος Braille

a	b	c	d	e	f	g	h	i	j	k	l	m	n

α	β	γ	δ	ε	ζ	η	θ	ι		κ	λ	μ	ν

o	p	q	r	s	t	u	v	w	x	y	z

ξ	ο	π		ρ	σ	τ	υ	φ		χ	ψ	ω

However, there are Greek letters which do not have corresponding combination in English alphabet.

The numbers are created by the placement of per capita in front of the first ten letters of the English alphabet,

Table 7.

Αναπαράσταση αριθμών στο αγγλικό και ελληνικό σύστημα Braille

Αριθμοί	1	2	3	4	5	6	7	8	9	0
Αγγλικά / Ελληνικά										

The braille method is, from a linguistic view exact reproduction of written language. In other words, the reading is based on the same sounds, the meanings of words, to grammar and semantics, which are necessary for the understanding of written texts in any language. Because of this linguistic similarity, it is particularly important to understand what common elements constitute the natural shape of the data, the method approach to learning and the process of reading of braille. The natural shape of a panel with braille information is extremely important, both for teaching and learning. The braille method is an alphabetical system, as well as the written language for this reason children must start from

the recognition of letters as integrated schemes, as is the case with the letters of the written language.

The teaching of braille method depends on the touch and movement. The touch is considered as the basic feel for the collection of information, education and understanding of blind people. And the direct contact with objects. Katz (1925), Klatzky et al (1985) say that although touching is considered a slow and poor feeling in relation to vision, it is defined as a system whereby we can identify small objects with great accuracy.

The view that the touch is a form of degraded vision is contradicted by an earlier opinion that the touch is the basis of the perception (Berkelay 1709). Later it was supported by the Russian school of psychology. In accordance with the Russian school touch "teaches" the vision and is the main feeling between the different basic senses (Millar, 1994).

The Katz described the rich world of information received through touch (Katz, 1925). Tactile sensation is greater than the vision to identify properties, such as the thickness of a paper or the presence of a vibration (Katz, 1925).

The touch can be more effective and to distinguish the texture(Heller, 1989). The sense of touch may not be fully developed in people with vision, because of the influence of vision, which is superior to the idea of form and space (Revesz, 1950). Various researchers have argued that the development of tactile and visual exploration is similar with the tactile to follow a comparatively delayed time course. A large part of this delay is related to the characteristics of the receptors of the two senses (Piaget, 1953 Warren, 1982).

The difference in synchronization is due to two factors. The first relates to the clumsiness of the hands as opposed to the movements of the eyes.

The second parameter is associated with the spatial distribution of receptors in the eye, which contributes more than this in hand.

The methods used in the tactile exploration significantly affect the tactile perception.

Experiments have shown that tactile perception improved substantially during the first years of childhood (Warren, 1982). The vision and the touch produce very different impressions e.g. we have the visual experience of color, but the you tactile experience of soft and hard surfaces. We note that the two senses give us very different information. However, while the stimuli vary the concept may exceed the sensory input (Gibson music rehearsal room is another, 1962, 1966).

The perception that fosters the braille method has significant implications in the process of reading because it depends not only on the touch, but also on the movement. The touch or tactile perception depends on the information obtained from exploring movements. The acquisition of tactile information happens to a large extent during detection and not when the finger is stationary. One of the easiest ways to gain information through touch is when we use the edge of the finger. The beginner students of braille do not know how to obtain information through touch and movement. They usually push to force the raised dots of braille characters by pressing repeatedly the finger at the top and around the dots. These movements loose their direction if they are not systematic over the shapes of braille. Someone who begins to learn the braille must recognize simple characters in order to be able to combine their respective sounds of letters e.g. he or she touches the alpha and tries to hear what is trying to detect. The most appropriate method of learning braille is by using full-size characters. The detection of shapes is carried out from left to right and from top to bottom in exastigmo. Each exastigmo forms and a character. By sensing with the touch character by character, one can read a word, a phrase, a text. The practice plays the most important role. Children must be guided properly in order to learn how to operate in a methodical manner the horizontal and vertical movements in any context, because it makes the recognition of individual characters. The beginner readers of braille for the recognition of characters often make mistakes of reverse and confusion and this is due to the fact that they are not sufficiently skilled in recognition of the positions held by the characters, because they originate all from the exastigmo and differ only in the presence or absence of some dots, example table 8.

Table 8.

Φ =	.	.		δ =	.	.
	.					.
χ =	.			ω=		.
	.	.			.	.

ε =	ι =
μ =	ει =
! =	. =

The reading is a complex task with many interrelated processes. One important aspect of these procedures is the way in which the written information is obtained. As has been demonstrated by various studies the reading with the help of vision is faster than the written reading.

The main reason for the differences between the two types read, can be found at the start of the reading process and in particular the amount of information that can be recovered through the optical and tactile reading (Simon & Huertas, 1998).

From the beginning of the creation of braille, attempts have been made so that the optical reading is equal to the tactile reading although in one case we are dealing with the vision and in the other case we are dealing with the touch. Although they are different methods of reading because the readers with vision are able to understand one word or one group words, but in reading braille the acquisition of written information shall be carried out by a continuous movement of the hands. In addition, while the eyes move and allow people

with vision to skip some of the words in the text, the readers of braille cannot do the same thing, because the fingers should necessarily scan all the characters in a series of text. The vision can more quickly identify written characters than touch (Simon & Huertas, 1998).

It has been supported that the reader of braille first memorizes the characters in order, and then links them to form words (Daneman, 1988, Nolan & Kederis 1969, Foulke 1982).

Then links the words to form the phrases and the proposals (Foulke, 1982).

For the reader of the braille, the perceptual unit is each time one character (Nolan & Kederis, 1969).

Other researchers say that the perceiving units can be larger than an individual character (Grunwald, 1966, Kusajima, 1974).

Recent study has concluded that the readers of braille do not necessarily collect information in sequential manner e.g. not read one by one the characters, but incorporate more units of written information (Simon & Huertas, 1998).

In my view the speed and practice play an important role in reading a word. When the readers appreciate the reading of braille, they can read at a faster pace by giving the impression that they read more characters. In addition, experienced readers of braille read with a faster pace based more on the concept of words. So, they do not read entire words, but they use the general concept to understand the word they skipped. During the initial stages they should place the emphasis on recognition of characters as well as the recognition of words.

The braille is perceived through the points that press the ends of the fingers. The recruitment of information depends directly on the correct positioning of the arms. The position of the arms must be such as to make more efficient use of the ends of the fingers, as well as the maximum sensitivity is detected at these locations. By bending the fingers in comfort, the edges focus on the top of the exastigmo - where the majority of dots appears- but also can extend throughout the exastigmo.

This is done with the cooperation of the two hands. The left hand moves to read the new line before the right completes the reading of the previous. In such cases, there is a time period during which the hands simultaneously investigate different parts of the text. Of course we are talking about experienced readers. The beginner students gain the braille letter - letter, word - word.

Various methods have been reported, for example the reading with the left hand, the reading with the right hand, the simultaneous reading with both hands with the one hand following the other and, finally, the reading with both hands when the hands have separate function dividing the text.

What reading method is appropriate?

My assessment is that after the reader understands the braille letter by letter, word by word, he or she will find the method that best serves him or her. The fingertips of readers must move on the braille line with a fast and smoothly continuous speed. If the speed is slow, they will read only individual characters. An example is the code Morse. Initially, the trainees in this code learn to recognize individual characters, but as they acquire experience they can recognize whole words. The temporal relationship between the dots and dashes that make up each character, but also the spaces between characters, affect the perception of the code. If these relations varied, the capacity to read the code Morse would be destroyed (Foulke, 1982).

The teacher can devise various activities to improve the reading and to develop the effectiveness of each arm. For example, the teacher can use a worksheet of two columns with words or symbols. The reader must move toward the bottom on the left-hand column with the left hand and the right to the right, indicating whether the data pairs are similar or different. Another activity might be to present a word list on the left with their synonyms or antonyms tangled in a list on the right.

The student should read each word on the left-hand list with the left hand, while holding a finger to the word and with the right hand to detect the other list to identify the synonym or antonym of word (Constantinos P. Papadopoulos, blindness and read, 2005).

The question of which hand is most appropriate has been addressed by experiments in Germany that have shown the best hand is the left and in America the right. And even the sovereignty of the right hand was greater in fast readers than to slow. My assessment is that each reader will find himself or herself which is the right hand for the reading.

In more recent studies, the focus has shifted to the relationship between the possible differences between the hands and the specialized function of left and right hemisphere of the brain. As is well known the hemispheres of the brain are symmetrical. The right hemisphere is more qualified to spatial objectives and left in verbal processes (Millar, 1997). A possible fault in the left hemisphere has effects on the right side, considerably weakening

the linguistic procedures, while some fault in the right hemisphere weakens considerably the spatial processing (Constantinos P. Papadopoulos, reading and blindness, 2005).

Most pre-school children even though they are not able to read and write in a specified format, they exhibit a steady growth in reading and writing (Hiebert, 1988).

Children at this age learn the relations between letters and sounds and the name of the letters to help them learn to read.

Three general factors are connected with the subsequent literacy of children of school age.

- The oral language,
- The potential processing phonological
- The knowledge of written language

Both the knowledge of written language, as well as the potential phonological processing, have a strong influence on the development of decoding capabilities. For example, at the entrance of children at school, the knowledge of the alphabet is one of the strongest precursors for learning literacy (Adams, 1990).

Pre-school education to literacy for young children with visual impairments closely resembles the education of children with vision, both in the activities implemented and the skills necessary to develop. The children learn the alphabet before starting the formal education and this helps to learn to read.

Children of pre-school age realize the written language (rules and functions of written language), come in contact with written texts (tales), and learn the letters.

As a result, the children learneasily reading and spelling. The knowledge that children of pre-school age acquire is necessary for the development of literacy and should be included in education of children with visual impairments. In addition to the hearing stories should include tactile perception and the activities in writing braille machine(Harley, 1997).

At the beginning of the programming of braille reading is of great importance for the students to have a sufficient knowledge base. Pre-school education helps children to improve their ability to read. This view has been accepted by the experts involved in the education of children with visual impairments.

Pre-school education can assist in the development of specific skills and abilities necessary for the start of the process of learning braille reading and writing. Teachers emphasize in the development of additional skills such as for example the kinetic development, listening skills, language development and the awareness of reading. Both

parents encouraged to learn the braille writing to read to children, both from the books of people who could read using their vision, as well as the braille books.

Children who are at the stage before the start of training in braille, they need sufficient support and assistance from a teacher who has been trained to meet their specific needs, while it is very likely to require education and support on a daily basis. Teachers of visually impaired children watch many of the children to try to learn the braille but few to "love" reading, to "sleep" with the books and crave for reading (MacComiskey, 1996).

Children with visual impairments do not experience quite the fun and excitement of reading that will help them to create a stable environment literacy and to build a basis for the development of braille reading.

Teachers of young children, who deal with potential readers of braille writing, repeatedly expressed the fear that they may not be able to give the visually impaired children what they actually need, in order to become skillful readers

(MacComiskey, 1996).

The blind children are not disadvantaged in matters which require information, such as the numeric and the vocabulary, but in perception of things such as shapes and colors.

In children with vision problems before they start to learn to read, they should be given different experiences. The teacher can help the children by bringing them into contact with various objects, with a view to exploring them.

A training program of reading may include educational tours, activities with plants and animals and game.

The American Printing House produces a range of educational materials and programs related to cognitive development and to the development of concepts, which can be used by both teachers and parents of children with visual impairments.

The touch and hearing are the most important senses for the education of blind children. The kinetic, the research and which applies screening skills help children to learn the braille reading and writing. Tactile discrimination of braille writing requires the application of a specific pre-training program, which includes the use of various tactile materials, with a view to preparing for the start of the reading.

The American Printing House has developed various materials and programs for the development of tactile skills. Relevant references can be constructed by the teacher using different materials.

The Barraga and Erin (1990) have proposed the following levels of tactile programming:

- Awareness and attention to textures, temperatures and other characteristics of three dimensional objects.
- Structure and shape of objects
- Relations part to whole
- Graphic representations
- Braille symbols.

After completion of the above four stages they can begin learning braille.

Various researchers have described methods to act effectively to improve tactile skills, which influences the reading of braille (Lamb, 1996).

The skills include:

- The horizontal scan from left to right and from top to bottom to read graphs.
- The gentle touch with the fingers
- The harmonic movements of hands
- Exercise with the greatest possible fingers
- Simultaneously and independently the use of two hands,
- The successful return movement from the current line to the next.

Children with visual impairments learn to read using braille literacy, as children with vision learn to read the documentation forms.

The success of reading through the braille system depends largely on the teaching experience of the teacher.

The teacher should have the capacity to combine different methods to meet the needs of the programming and the potential of pupils with visual impairments. The frequent and intensive training is needed to enable children with visual impairments to learn the braille writing.

The basis of literacy is based on understanding of concepts and includes the use of language in all its forms, the personal experiences, the haptic skills and the cultivation of perception.

Today most children with vision problems are educated in mainstream schools.

Discussion

The great discovery of braille enabled blind and visually impaired people to write and read. For the blind people braille represents the competence, independence and equality.

It has been created and developed Braille machinery, special Braille printers for printing books and suitable software computers providing means of education and communication to the visually impaired.

The objective is the integration of children with vision problems in education and in social development.

The accession training envisages the elimination of all barriers to learning and participation for all children and is opposed to all forms of exclusion and discrimination against the visually impaired.

In Greece even though laws for the integration of children with disabilities in "normal" schools have been passed, significant steps ahead still need to be made by school, teachers, parents and society.

Reference

American Printing House for the Blind (1991). Distribution of federal Quota Based on the Registration of Eligible Students. Louisville, KY: Author.

Adams, M. J. (1990). Beginning to read: Thinking and learning about print. Cambridge, A.M. Massachusetts Institute of techonology Press.

Bain, R. - Fitzerald, B. - Taylor, M. (1992) (Eds), "Looking into Language", Hodder & Stroughton, London.

Barraga, N. C. & Erin, J. (1990). Visual Handicaps and learning. Austin: ProEd.

Berkeley, G. (1709/1974). An essay towards a new theory of vision. In D.M. Armstrong (eds.) Berkeley's Philosophical Writings. New York: Collier.

Daneman, M. (1988, November 16). How reading braille is both like and unlike reading print. Memory and Cognition, 16, 497-504.

Drakos D. J. (2003). Special Education of Speech Problems.

Emmit, M. - Pollock, J., (1991). "Language and Learning", Oxford University Press Australia, Melbourne.

Foulke, E. (1982). Reading braille. In W. Schiff & E. Fooulke (Eds.), Tactual perception: A sourcebook (pp 168-208). New York: Cambridge University Press.

Gibson, J. J. (1962). Observations on active touch. Psychological Review, 69, 6, 477-491.

Gibson, J. J. (1966). The Senses Considered as Perceptual Systems. Boston: Houghton Mifflin.

Grunwald, D. (1966) A braille reading Machine. Science, 154, 144-146.

Halliday, M.A.K. - Hasan, R.,(1985). "Language, Context and Text: Aspects of Language in a Social - Sermotic Perspectives", Deakin University, Geelong, Vic.

Harley, R. K., Truan M. B. & Sanford L. D. (1997). Communication Skills for Visually Impaired Learners (2nd ed.). Charles C Thomas Publisher LTD.

Heller, M. A. (1989). Texture perception in sighted and blind observers. Perception & Psychophysics, 45, 49-54.

Hiebert, E. H. (1988). The role of literacy experiences in early childhopod programs. The Elementary School Journal, 89 (2), 161-171.

Katz, D. (1925). Der Aufbau der tastwelt. Leipzi: Barth.

Klatzky, R. L, Lederman, S. J. & Metzger, V. (1985). Identifying objects by touch: An "expert" system. Perception And Psychophysics, 37, 299-302.

Kusajima, T. (1974) Visual reading and braille reading: An experimendal investigation of the physiology and psychology of visual and tactual reading. New York: American Foundation for the blind.

Lamb, G. (1996). Beginning Braille: A Wholl Language-based Strategy. Journal of Visual Impairment & Blindness, 90 (3), 184-189.

MacComiskey. A. V. (1996). The Braille Readiness Skills Grid: A Guide to Building a Foundation for Literacy. Journal of Visual Impairment & Blindness, 90 (3), 190-194.

Millar S., Ballesteros, S. & Reales, J. M. (1994). Influance of symmetry in haptic and visual perception. 35th Annual Meeting of the Psychonomics Society, St Louis.

Millar, S. (1997). Reading by touch. London: Routledge.

Nolan, C. Y. & Kederis, C. J. (1969). Perceptual factors in Braille Recognition. New York: American Foundation for the Blind.

Papadopoulos S. K. (2005) Blindness and Reading, Reading by Touch.

Piaget, J. (1953). The origin of intelligence in the child. London: Routledge & Kegan Paul.

Revesz, G. (1950). The psychology and art of the blind. London: Longmans Green.

Simon, C., & Huertas, J. A. (1998). How Blind Readers Perceive and Gather Information Written in Braille. Journal of Visual Impairment & Blindness, 92 (5), 322-331.

Wardhaugh, R., (1992). "An Introduction to Sociolinguistics", 2nd ed., Blackwell, B., Oxford, U.K.

Warren, (1982). The development of haptic perception. In W. Schiff & E. Foulke (Eds.), Tactual perception: A sourcebook (chapter 3). New York: Cambridge University Press.

Wilkinson. L. C., (1982). "A Sociolinguistic Approach to Communicating in the Classroom", in Wilkinson L. C. (Ed), "Communicating in the Classroom", Academic Press, New york, 3-11.

Zoniou - Sideri A. & Spandagmou H. (2011). Education and Blindness.