European Proceedings of
Social and Behavioural Sciences
EpSBS

www.europeanproceedings.com
e-ISSN: 2357-1330

DOI: 10.15405/epsbs.2020.11.53

HPEPA 2019
Humanistic Practice in Education in a Postmodern Age 2019

TEACHING THE LORM ALPHABET TO ADULTS WITH DEAF-BLINDNESS ACQUIRED WITH AGE

Elza Kasimova (a)*, Rimma Kutlubaeva (b)
*Corresponding author

(a) Bashkir State Pedagogical University n. a. M. Akmulla, ul. Oktyabrskoj revoljucii, 3-a, Ufa, RB, the Russian Federation, kasimova_elza@mail.ru
(b) Bashkir State Pedagogical University n. a. M. Akmulla, ul. Oktyabrskoj revoljucii, 3-a, Ufa, RB, the Russian Federation, rimma030296@gmail.com

Abstract

This article assesses alternative means of communication in the native language for people with deaf-blindness acquired with age. Older people, who are gradually losing their hearing and eyesight, have difficulty in mastering the tactile/contact way of communication and Braille script. The tactile/contact way of communication prevails in the variety of domestic means of effective deafblind interaction, including the deafblind manual alphabet, an adapted form of *finger* spelling for tactile perception. There is another means of communication performing the same purpose just as well. We are talking about the Lorm code, extensively and successfully practiced abroad. It is applied in the Hanover rehabilitation center for the deaf-blind in Germany. The Lorm alphabet was translated into Russian by Yuri Krylatov. Unlike dactylology, which is borrowed from the communication means of deaf people able to see and which is intended for visual perception, the Lorm alphabet was initially focused on the tactile sense, this is why it is more comfortable for the blind. The Lorm code implies touching certain points on the hand and on the palm, every touch indicates different letters. The deaf-blind people can use the Lorm alphabet for communication with each other, as well as with people who are able to hear and see. Moreover, this alphabet helps the deaf to communicate with blind people who are able to see.

2357-1330 © 2020 Published by European Publisher.

Keywords: Alternative means of communication, deaf-blindness, deafblind adult persons teaching, national language, psychophysiological functions examination, the Lorm code.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-Noncommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

1. Introduction

Deaf-blindness is a complex sensory defect that involves dual visual and hearing impairment.

There are many ways that deaf-blind people use to communicate. Here are the most common ones: verbal speech, dermographia, Braille reading system, lip reading, fingerspelling **(**dactylology**)**, sign language, the Lorm code.

The Lorm code is an alternative way of communication where touching certain points on the hand, as well as stroke-like movements on the palm of the hand are supposed to indicate different letters of the alphabet.

The Lorm code was invented in Germany by a blind philosopher over 100 years ago. His name is Hieronymus Landesmann. Unlike dactylology, which is borrowed from the communication means of deaf people able to see and which is intended for visual perception, the Lorm alphabet was initially focused on the tactile sense, this is why it is more comfortable for the blind.

The deaf-blind people can use the Lorm alphabet for communication with each other, as well as with people who are able to hear and see. Moreover, this alphabet helps the deaf able to see to communicate with the blind able to hear; it can be used by older people losing their eyesight and hearing; by people suffering from aphasia.

Nowadays there is no methodology for teaching the Lorm code in Russian, although Y.D.Krylatov has adapted the Lorm alphabet from Latin into Russian.

2. Problem Statement

Currently, the Republic of Bashkortostan has a system of national education and training. There are kindergartens and schools where children are brought up and study in their native language (Bashkir and Tatar). There are some alternative means of communication for deafblind people, carried out in Russian language, however, people with acquired deaf-blindness have difficulties in mastering the Russian means of communication, since it is not their native language. Therefore, there is a need to develop alternative means of communication using native languages (Bashkir and Tatar).

3. Research Questions

Teaching elderly people with deaf-blindness acquired with age to communicate using alternative methods requires knowledge of their native language (namely, proficiency in written language) and a preliminary study of the kinesthetic and kinetic praxis of hands in order to master the Lorm code. Therefore, we compiled a survey technique revealing some psychophysiological characteristics.

4. Purpose of the Study

The survey is aimed at studying the features of fine motor skills of elderly people with deaf-blindness, as well as developing the guidelines for teaching the Lorm alphabet using Russian language. Another purpose is to adapt and describe the Lorm code in native languages (Bashkir and Tatar) by virtue of the analysis of some alternative means of communication available to the deaf-blind.

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

5. Research Methods

The research methods include theoretical analysis of literature in linguistics, psychology and pedagogics on the topic of our research; conversation, questionnaire; diagnostic methods; methods of qualitative and quantitative analysis of experimental research; diagnostic methods (fine motor skills examining); conducting a training experiment.

6. Findings

1. We have developed the Lorm alphabet in our native language.

In the process of creating the Lorm code in our native language, we have analyzed the International Phonetic Alphabet, which is a system of symbols of phonetic transcription based on the Latin alphabet; it means that there are transcriptions of sounds usable for all languages.

When compiling the Lorm alphabet for our native language, we tried to preserve the location of certain sounds of German language as it was designated by the author - the blind philosopher Hieronymus Landesmann, who had lost his hearing. Therefore, the letters Y and Ɵ were designated with the following lemmas: Y - 2 tweaks of the little finger, Ɵ - 2 tweaks of the ring finger.

The Republic of Bashkortostan was founded in 1917. Initially, the writing system was based on Arabic writing. Then, in the late 1920s, all the Muslim people of the USSR were made to use the Latin alphabet. The Bashkirs used the Latin alphabet from 1928 to 1940. In 1940, the Cyrillic alphabet was introduced. When switching to the Cyrillic alphabet, two letters from the Latin language (h, k) were added to the Bashkir alphabet and 7 letters were modified. Modern Bashkir writing, based on the Cyrillic alphabet, consists of 42 letters.

The Tatars used the Latin alphabet from 1927 to 1939 and then they switched to the Cyrillic alphabet. When switching to Cyrillic, 5 letters were altered in the Tatar language, the letter h was borrowed from the Latin alphabet. Modern Tatar writing includes 39 letters (Bondarko, Verbitskaya, & Gordina, 2004).

In the process of creating the Lorm code for our native language, we primarily wanted to emphasize the historical significance of the Tatar and Bashkir languages, which belong to the Turkic group of languages based on Arabic script. The main elements of Arabic writing are curls and loops.

Secondly, when Tatar and Bashkir letters were translated from Latin to Cyrillic, new letters with curly elements were introduced to differentiate the sounds of Russian and Bashkir (Tatar) languages. This principle was also used in our survey, which is why we used curls to designate Bashkir and Tatar Lorm units (Figure 01, Figure 02).

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

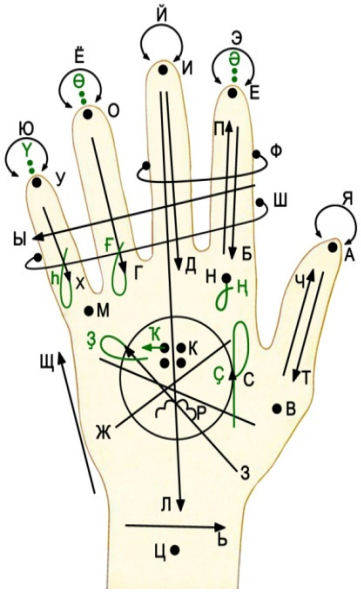

Figure 01. The Lorm code for Bashkir language

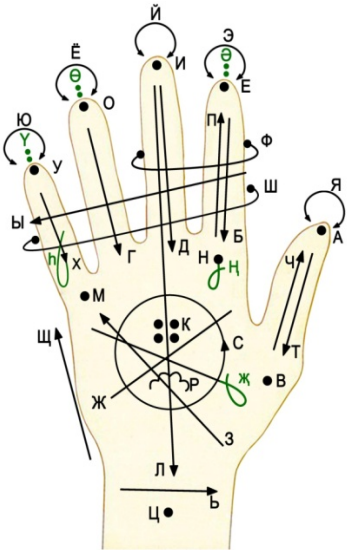

Figure 02. The Lorm code for Tatar language

2. A practical study was organized as well. The purpose of the study was to identify the level of fine motor skills development of elderly people with deaf-blindness in order to further teach them an alternative means of communication - the Lorm code.

Research tasks:

1. To choose diagnostic tools suitable for finding out if people with dual sensory impairments are ready to master the new way of communication.

2. To analyze the results of the diagnostic examination.

The examination has two stages:

During Stage 1 we have conducted a questionnaire survey, developed on the basis of a questionnaire for registering the deaf-blind persons. All in all, there were 18 questions. The questionnaire made it possible to determine: their age, level of education, vision conditions: the severity of visual impairment, the major ophtalmic disease, the information whether they have visual disabilities or not, the age when the vision was lost, whether residual vision is enough for their spatial awareness; hearing conditions: the severity of hearing loss, the major disease, the diagnosis, the age when the hearing was lost, whether there is a hearing disability and any associated diseases. Moreover, we have found out what means of communication people know (sound speech, facial expressions and gestures, fingerspelling, Braille reading system, flat-bed writing, dermographia, the Lorm code, lip-reading), what means of communication they usually use, how they understand other people, with whom they can communicate more easily (with vision-impaired people who are able to hear, with hearing-impaired people or with the deafblind), whether they can independently navigate outside the house, whether they are able to use public services and what their main leisure activities are (Sirotkin & Shakenova, 1989).

During Stage 2 the examination of fine motor skills was held. The survey includes 4 series:

Series 1 - Kinesthetic Praxis Examination

Task 1. Test for studying the posture praxis using a tactile (visual) sample

Purpose: to test the optical-kinesthetic organization of a complex movement (posture).

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Description: The subject is consistently showed different finger positions, which he/she needs to repeat. After adopting each pose, the hand is freely placed on the table. Both hands are examined alternately.

Instruction: «Now I am going to show you various finger positions. You need to look carefully and repeat the pose. Take your time. Firstly use your right hand, then - your left hand».

Task 2. Adopting a posture using the kinesthetic model

Purpose: to test the kinesthetic organization of a complex movement (posture).

Description: The subject closes his/her eyes. The test conductor puts the subject's fingers on one hand in a certain position. The subject needs to take the same pose on the other hand with his eyes closed. The poses and conditions are similar to the previous task.

Instruction: «Close your eyes. Do you feel that I have put your fingers together? Please, put them in the same way on the other hand».

Results:

3 points - the subject understands and reproduces poses correctly

2 points – the subject was able to understand the pose, but has difficulties to reproduce it

1 point – the subject was not able to understand and to reproduce the pose

Series 2 –Dynamic (kinetic) Praxis Examination

Task 1. Test "fist - palm - rib" (according to Luria, 1962)

Purpose: to test the dynamic organization of each hemisphere's motor actions

Description: the action is performed with the help of visual display, or by tactile pattern. The test conductor asks the subject to consistently bang the table with his/her fist, with flat hand and with the rib of the hand: fist - palm - rib, etc. The subject must not change the position of his/her hand. In order to reproduce this series of actions, it is necessary to repeat the instructions several times and to show an example. Normally, a test is produced easily and the test subject gradually increases the pace and smoothness of the exercise. If necessary, the test conductor can ask the subject to do the same actions, but in an altered sequence, for example, "rib-palm-fist". Both hands are examined alternately.

Instruction: «Look at my hand carefully – this is my fist (the hand is clenched into a fist). Repeat. This is my palm (the palm is laid flat on the table). Repeat. And this is my rib (a palm is laid on the table with the rib). Repeat. You need to consistently perform this series of actions. Slow first, then faster» (Luria, 1962).

Task 2. Reciprocal coordination test (Ozeretsky probe)

Purpose: to test the dynamic organization of the motor apparatus when the two hemispheres are working simultaneously.

Description: The subject is asked to clench one hand and straighten the other simultaneously (see Appendix 1); these actions interchange several times. The pace is gradually increasing. The actions are performed smoothly. Before starting it is possible to show an example (the subject puts his hands on the hands of the test conductor)

Instruction: «Put your hands on the table. Look at my hands carefully. Your right hand is clenched into a fist, the left hand is straight, palm down. You need to straighten your right hand at the same time, and clench your left hand into a fist. Repeat several times".

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Results:

3 points –the subject has understood the actions, remembered the series and reproduced it without any errors

2 points – the subject has understood the actions, did not remember the series and reproduced it with errors

1 point – the subject is not able to remember the sequence of postures or passively continues to reproduce the previous posture (the fist, for example), the subject does not switch to another action.

Series 3 – Tactile Praxis Examination

Task 1. Foerster's probe

Purpose: to test the tactile perception of a complete image

Description: The test conductor points his/her finger on the subject's right hand (and then on the left hand) to depict several figures (a triangle, a square, an oval, a cross and a circle) and then several numbers; after that the test conductor asks the subject to tell what figure or number was meant.

Instruction: «Close your eyes. Now I will draw some figures on your palm. You have to tell me what I meant. Now I will write some numbers. Your task is to tell me what figure I wrote».

Task 2. Touch localization

Purpose: to test the tactile perception of some individual elements

Description: before starting the procedure, it is necessary to repeat the name of all fingers (thumb, index finger, middle finger, ring finger, little finger), to describe the parts of the palm (middle of the palm, base of the palm, base of the fingers, fingertips). Different types of touches should also be described (pressing, pinching or drawing a line from top to bottom and vice versa). The test conductor touches various parts of the subject's palm and asks him to name the place of touch and the technique. For example: a pinch of the tip of the left hand's index finger.

Instruction: «Now I'm going to touch different parts of your palm. You must tell me what part it was, for example, the tip of the little finger. You also need to describe the way I touched it (pressing, pinching or drawing a line from top to bottom and vice versa) ».

Results:

3 points - the subject feels and indicates the tactile image (complete image and individual elements)

2 points – the subject confuses the images of perception; he/she defines the localization, but has difficulty to name the manner of the touch and vice versa

1 point – the subject is not able to feel the touch correctly: cannot determine what is "written" on the palm of his/her hand; cannot determine the localization and the manner of the touch

Series 4 - Leading hand definition

Task 1. Questionnaire

The questionnaire is compiled on the basis of the Annette - Chuprikov test. The subject answers the questions. The number of points scored determines the leading hand.

1. Which hand do you use for writing?
2. Which hand do you use for throwing stones?
3. Which hand do you use for lighting a match?
4. Which hand do you use for cutting the paper with scissors?

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

5. Which hand do you use for cutting bread?
6. Which hand do you use for brushing your hair?
7. Which hand do you use for brushing your teeth?
8. Which hand do you use for opening the tube of the toothpaste?

Task 2. Practical task

The subject is asked to complete the following tasks:

1. To open the bottle with a screw cap. The test conductor should note which hand was used to unscrew the cap.

2. To take a pen from the table. The test conductor should note which hand was used to perform this action.

3. To open a book.

The test conductor must note which hand is the leading one.

According to the results of the fine motor skills examination, the following levels are revealed (table 01).

Table 01. Quantitative and qualitative assessment of the tasks' completion

Score	Qualitative assessment of the tasks' completion	Level
15-18	The subject perceives and reproduces the poses correctly. He/she perceives the actions correctly, remembers a series, and reproduces it without errors. He/she feels and names the tactile image correctly (a complete image and individual elements)	High
7-14	The subject perceives a pose correctly, but he/she has difficulties in its reproduction. The subject understands the actions, but cannot remember a series, reproduces it with errors. He/she confuses the images of perception; defines the localization, but has difficulty to name the manner of a touch and vice versa	Medium
0-6	The subject does not perceive and does not reproduce the poses. He/she cannot determine the sequence of the poses, or continues to repeat passively the previous pose (for example, a fist), cannot switch to another action. The subject cannot determine what is "written" on the palm of his/her hand; cannot determine the localization and the manner of a touch	Low

We assume that a person reaching a low level will not be able to master the Lorm alphabet.

The experimental group of our survey consisted of 6 people. We have obtained the following results: 4 people reached a high level, 1person - medium, 1person - low.

3. The examination provided us with an opportunity to develop several methodological recommendations for helping the deaf-blind adults to master the Lorm alphabet in their native language.

These methodological recommendations are based on "The Lorm Code", a didactic manual by Krylatov (1988).

Teaching deafblind adults the Lorm alphabet is majorly aimed at forming necessary skills for the correct perception and reproduction of Lorm units.

Here are several conditions required for a successful and productive learning of the Lorm alphabet:

1. The student must be proficient in oral and written speech.

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

2. A person must have a sufficient (high or medium) development level of kinetic, kinesthetic praxis and tactile sensation.

3. The student must have a high level of motivation to achieve a positive result.

The entire system of pedagogical work undertaken to form the correct assimilation of the Lorm code consists of three stages:

I. Preparative stage

The purpose is to prepare the trainees to perceive the new information.

This stage aims at:

а) improving the kinesthetic and kinetic praxis of fine motor skills, i.e. organizing preparatory exercises for the development of finger fine motor skills;

б) improving the hands' sense of touch, i.e. organizing preparatory exercises for the development of tactile gnosis of the palm's skin.

II. Principal stage

The purpose is to form the skills of "lorming" on oneself. This stage aims at:

а) learning the Lorm code techniques (a point is made by touching or pressing, a pinch – by squeezing the fingertips, a stroke – by "drawing" lines in different directions, a curl – by "drawing" a curl)

б) learning the location of a certain letter in the palm of one's hand

в) overlearning the "lorming" skill on oneself (direct and reverse syllables, words and sentences).

III. Final stage –forming communicative skills

The purpose is to develop independent "lorming" in the process of tactile communication with the interlocutor.

Here follows a detailed description of the work at each stage of training.

I. Preparative stage

Lorm's code is based on the kinesthetic, kinetic praxis of the "writing" hand and the tactile sensation of the "reading" hand. The "writing" hand moves coordinately in certain directions - it "writes" the Lorm units, the "reading" hand perceives, "reads" the Lorm units. The examination in the experimental group revealed a slight violation of motility and tactile gnosis.

At this stage, the work is carried out in two directions:

а) Improving the kinesthetic and kinetic praxis of the hands' fine motor skills.

Examples of several preparatory exercises developing finger motility:

Exercise 1. The trainee is asked to touch all his fingers with the tip of his right thumb, and then his left thumb. First, alternately with right and left hands, then simultaneously with two hands (in order to form a "ring")

Instructions: "Straighten the palm of your right hand and touch the tips of your index, middle, ring and little finger alternately with the tip of your thumb. As if all your fingers are greeting the thumb. Do the same exercise with your left hand. Then do it using both hands simultaneously. "

Exercise 2. The palms of the right and left hands are put parallel to each other. The specialist asks the trainee to unite the fingers of one hand with the fingers on the other hand in turn (first, the little finger of the right hand reaches the little finger of the left hand, then the ring finger of the right hand reaches the ring finger of the left hand, etc.) ("Fingers greet each other")

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Instructions: «Put the palms of both hands opposite to each other. All fingers should “say hello” to each other. With the little finger of the right hand, reach the little finger of the left hand, then with the middle finger of the right hand reach the middle finger of the left hand and so on, say hello alternately with all your fingers, ending the exercise by uniting the thumbs».

Exercise 3. The specialist shows various positions of the right hand’s (and then left hand’s) fingers. The trainees must perceive and maintain this position, firstly, with their right hand, then with their left hand, and after that with both hands at the same time.

The following hand gestures may be used:

“a bunny” - the index and middle fingers are straightened, the ring finger and little finger are put together with the thumb;

“a goat” - the index finger and little finger are straightened up, the middle and ring fingers are put together with the thumb;

“a wasp” - the index finger is straightened up, other fingers are clenched into a fist, etc.

Instructions: «Now I’m going to show you various hand gestures. You must look carefully and then repeat the gesture. Take your time. Use your right hand first, then left, and then do it with both hands at the same time».

Exercise 4. The subject must repeat the gestures from the previous task one after another. For example: goat - bunny, wasp - goat, etc.

Instructions: “Now I’m going to show you 2 gestures one after another, you need to repeat the first and the second gesture several times.”

Exercise 5. The subjects are supposed to form a ring with their thumb and forefinger of the right hand, then do the same with their left hand. These rings must be put together to imitate "glasses"

Instructions: “Put your right thumb and forefinger together to form a ring, other fingers are straightened up. Do the same ring with your left hand. Put these two little rings together with your fingertips. Now it looks like “glasses”.

b) Improving the hands’ feeling of touch, i.e. conducting preparatory exercises for the development of tactile gnosis of the palm’s skin.

Exercise 1. The test conductor is ‘drawing’ several figures (a triangle, a cross, a circle) or numbers either on the right or on the left hand of the trainee and asks the trainee to name it.

Instructions: “Close your eyes. Now I’m going to “draw” some figures on your palm. You have to say what I have drawn. Now I’m going to “write” several numbers. Your task is to say what number I wrote.”

Exercise 2. In the beginning it is important to remember the names of all fingers (thumb, index, middle, ring, little finger), describe the palm (middle of the palm, base of the palm, base of the fingers, fingertips). Touch techniques are also described (pressing, pinching, drawing a line from top to bottom and vice versa). And at first the person repeats all the techniques on his/her own hands. Then another person touches various parts of the trainee’s palm and asks him to name the location of the touch and its technique. For example: a pinch of the tip of the left index finger.

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Instructions: “Now I’m going to touch different parts of your palm. You must tell me what part I have touched, for example, the tip of the little finger. And you also need to the way that I touched it (pressing, pinching, drawing a line from top to bottom and vice versa). ”

II. Principal stage

The training introduces the concepts of a “writing” hand and a “reading” hand. The writing hand is the leading hand, which “writes the Lorm units” with the index finger. The “reading” hand is the palm where we write the Lorm units, so the hand is “reading”.

All the Lorm units of the Bashkir and Tatar languages can be nominally divided into groups in accordance with the manner of reproduction:

1) Lorm units indicated by dots (А, Е, И, О, У, М, Н, К, В, Ц);
2) Lorm units indicated by oblique strokes (Т, Б, Д, Г, Х, Л);
3) Lorm units indicated by tweaks (Я, Э, Й, Ё, Ю, Ү, Ө, Ә);
4) Lorm units indicated by slashes directed differently (Ч, П, Щ, З, Ж, Ы, Ь Р, С, Ф, Ш,);
5) Lorm units indicated by curl signs (Bashkir: Һ, Ҡ, Ҙ, Ғ,Ҫ, Ң; Tatar: Һ ,Ң, Җ)

In order to study each group of Lorm units one needs at least 3 lessons:

Lesson 1. Learning new information. Studying the position of a Lorm unit of the group given.

Lesson 2. Applying the knowledge (consolidating the learned skills). Practicing the usage of the Lorm units in forward and backward syllables, as well as in reflexive syllables.

Lesson 3. Systematizing all the lessons learned. Practicing the usage of the Lorm units in words and sentences about oneself (Zhigoreva, 2006).

III. Final stage (developing communication skills)

The purpose is to become capable of “lorming” in tactile communication with the interlocutor

After learning all the Lorm groups and practicing them at the levels of syllable, word, sentence and text, we proceed to “lorming” with the interlocutor without any assistance.

After learning the Lorm code, one needs to check the level of its proficiency. The levels are identified while communicating with the trainee.

The task completion can be assessed within the following levels:

1. High - a person writes and reads the Lorm units rapidly without any assistance
2. Medium - a person writes the Lorm units rapidly and on his own, but reads them more slowly
3. Low – a person writes and reads the Lorm units on his own in a slow pace
4. Zero – a person is not able to write and read the Lorm units, i.e. he/she did not master the Lorm alphabet.

We have been training a group of 6 people with dual visual and hearing impairments to master the Lorm code in the Bashkir language. We have selected people who studied the Bashkir language at school and for whom the Bashkir language is native. All our trainees have deaf-blindness acquired with age. The training lasted from October 2017 to March 2018. In October 2017, we have conducted a questionnaire and an examination. From November to March, the trainees were mastering the Lorm code step by step.

After the training, we have run diagnostics of the level of the Bashkir Lorm code mastery.

We have identified the following levels of mastering the Lorm code in our experimental group of 6 people: 2 people have reached a high level (Rimma H., Vinera B.), 2 people have a medium level (Pavel

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

B, Razilya Z.), 1 person has a low level (Ivan D.) and 1 person has a zero level (Alexander Z.). Thus, we confirmed our suggestion that according to the results of the examination, a person with a low level of fine motor development is not able to learn the Lorm code will not be able to learn. Alexander Z. had a low level of motor functions development, so he could not master the Lorm alphabet. (Kasimova & Shaikhaydarova, 2018; Shaykhaydarova, 2018).

7. Conclusion

In the course of this work, we have made a theoretical review of several sources, which made it possible to note that deaf-blindness is a complex sensory impairment that includes simultaneous visual and hearing impairment. Some special alternative means of communication form the base of deafblind interaction. The most common means of communication for the deaf-blind are: verbal speech, palm writing (dermographia), Braille script, “Tadoma method”, lip reading, “Gebolt method”, fingerspelling, sign language, the Lorm code. The choice of the method depends on the age when deafness was acquired.

We have studied the International Phonetic Alphabet and the Lorm alphabet for other languages. This information enabled us to develop the Lorm code for Bashkir and Tatar languages. In the process of creating the Lorm code for our native language, we primarily wanted to emphasize the historical significance of the Tatar and Bashkir languages, which belong to the Turkic group of languages based on Arabic script. The main elements of Arabic writing are curls and loops. Secondly, Tatar and Bashkir alphabets have some letters with curly elements, which is why we used curls to designate Bashkir and Tatar Lorm units.

In terms of our survey we have organized a practical examination. The purpose of the study was to identify the level of motor development of elderly people with deaf-blindness in order to further educate them an alternative means of communication - the Lorm code. 6 deaf-blind elderly people aged 58-78 have taken part in the tests.

We have used the probing tests created by Alexander Romanovich Luria, by Nikolai Ivanovich Ozeretsky, as well as the Annette-Chuprikov questionnaire, some of them were modified for the deaf-blind.

According to the study, four out of six people reach a high level of fine motor skills development. One out of six people has an average level, and one has a low level.

The results of the survey provided with opportunity to work out several methodological recommendations for teaching the Lorm code to deaf-blind adults. The training course consists of 3 stages. We have conducted training in the Bashkir language, and 5 people in our experimental group have successfully mastered the Lorm code. The development of teaching methods for the Lorm code has allowed expanding the ways of communication of elderly people with deaf-blindness acquired with age.

References

Bondarko, L. V., Verbitskaya, L. A., & Gordina, M. V. (2004). Osnovy obshchey fonetiki [Fundamentals of *General Phonetics*]. St. Petersburg.

Kasimova, E. G., & Shaikhaydarova, R. F. (2018). Training the Alternative Means of Communication for Persons with Deafblindness Acquired with Age. *Izvestiya Dagestanskogo pedagogicheskogo gosudarstvennogo universiteta.* Psyhologo-pedagogicheskiye nauki. *12*(3), 51-54.

https://doi.org/10.15405/epsbs.2020.11.53
Corresponding Author: Elza Kasimova
Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

Krylatov, Y. D. (1988). Kod Lorm. Didakticheskoe posobie [The Lorm Code. Didactic handbook]. Moscow: LVC VOG (All-Russian Society of the Deaf).

Luria, A. R. (1962). Vysshie korkovye funkcii cheloveka i ih narusheniya pri lokal'nyh porazheniyah mozga [*Higher cortical functions* in *man* and *their disturbance* during *local brain lesions].* Moscow: Moscow University Press.

Shaykhaydarova, R. F. (2018). Alternativnye sredstva obshcheniya lic s dvojnymi sensornymi narusheniyami [Alternative means of communication for persons with double sensory impairment]. *Innovacionnoe razvitie: potencial nauki i sovremennogo obrazovaniya, 3,* 93-95.

Sirotkin, S. A., & Shakenova, E. K. (1989). Slepoglukhota. Klassifikatsiya i problemy [Deaf blindness. Classification and problems]. Moscow: WSE of AllRSB Publ.

Zhigoreva, M. V. (2006). Deti s kompleksnymi narusheniyami v razvitii: pedagogicheskaya pomoshch' [Children with complex developmental disorders: educational assistance]. Moscow: Akademiya.