

## **MOTOR AND BREATHING EXERCISES AS FACTORS OF PUPILS' ADAPTATION TO LEARNING PRIMARY READING AND WRITING**

*(Professional paper)*

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### **Abstract**

*In this paper we examine the importance of motor and breathing exercises as factors of pupils' adaptation to learning primary reading and writing. Through various examples of motor exercises focused on the development of small hand muscles, developing arms, hands and fingers and their release, we demonstrate how individual movements flow into one whole when writing letters. Therefore, motor exercises are a necessary precondition for practicing writing letters and acquiring elements of good handwriting. Breathing exercises are aimed at conscious control of the breathing process and the prolonged time of residing air in the lungs so that while reading all voices are pronounced clearly and distinctively. Furthermore, whole sentences are recited in accordance with the thoughtful and emotional focus of the text. The mutual dependence of proper phonation breathing and quality reading and proficiency of the child's hands for fine movements and penmanship, show the importance of these exercises and represent correlation between the teaching of physical education and the mother tongue.*

**Keywords:** *Physical education, motor exercises, motor abilities, playing activities, breathing exercises, primary reading and writing, mother tongue, parents, teachers, arms, hands, fingers*

### **Preliminaries**

Starting in the first grade represents an event of great importance in the life of every child. The little one's life, until it started school has been filled up with play, without any obligations and work demands by parents or teachers. New school environment requires adoption, adaptation and socialization. It is necessary, with joy and without stress, to accept spatial and working conditions and teachers and to build positive interpersonal relationships with classmates in the classroom. New courses, classes which are organized by the daily and weekly schedule, time organization of the class of 45 minutes, which should be carried out sitting at a school desk, work requirements in the form of homework, are just some of the innovations that kids in this period encounter. Add to this a key requirement, that children in the first grade must master the basic elements of literacy: writing and reading. If the child is adequately prepared for school, successfully passed through the pre-school education and positive emotionally prepared by parents or guardians, educators and living environment, it will not go through the stress adaptive adjustment period

for compulsory education. In the first grade of primary school in the Republic of Serbia, there is no assessment, and learning is organized through playing activities, particularly aimed at the gradual habituation and adaptation of children to school, and acceptance of the learning process as life process.

Learning through play, without pressure which is imposed by the imperatives in the form of work demands and orders, allows children to acquire new skills, form habits and master the skills that will be necessary for future life and education. In this sense, mobility exercises and breathing exercises are an important factor in their adaptation to, for them, the new requirements of regular attendance and compulsory education, and allow the children through activities that look like a game, so they easily and joyfully accept them, adequately to prepare for learning to read and write.

Motor and breathing exercises enable you to achieve the correlation between the courses of physical education and native language, and to implement some of the primary goals and objectives. Programs of primary education in Serbia, such as, the development of

“intellectual capacity and knowledge of children and students necessary for the understanding of nature, society and the world we live in accordance with their development needs, capabilities and interests” and that children - pupils are encouraged to develop physical and medical abilities (*Regulations on the Curriculum for the First and Second Grade of Primary Education (Pravilnik o nastavnom planu za prvi i drugi razred osnovnog obrazovanja i vaspitanja)*, 2004). In the first grade of primary school the goal of teaching the native language is to master the basic principles of the Serbian literary language of oral and written properly expression. To achieve this goal, one of the main objectives is that students are literate on the orthoepy foundations and orthographic standards of the Serbian literary language. The goal of physical education is to contribute, systematically and using various motor activities, to integral development of students’ personality, motor skills, and the acquisition, development and application of motor skills and habits that are necessary for everyday life, and for the specific conditions of life and work. Learning objectives of these two subjects can be linked, which is in accordance with the prescribed requirements and mandatory program in Republic of Serbia, to associate various educational field. We cannot observe educational contents isolated and separately only within the subject areas to which they related. Modern life requires them to connect, so that physical education is not only directed towards encouraging the growth, development and function of the human organism and the development of physical skills, but also a skillful “use of the system of physical exercises, games and sports to develop overall physical and spiritual strength and man’s abilities” (Vlahović et. all., 1996).

Motor exercises and breathing exercises prepare students to successfully master the reading and writing and thus contribute to the integral development of their personality, because in the modern global society successfully mastering the techniques of reading and writing is a necessary prerequisite, that is the initial minimum knowledge that the individual could further develop and improve. In addition to that, considering the time that not only children but also the adults spend writing and reading or in front of the computer, the posture is very important in these activities and it affects the overall health of a person and help in the prevention of many diseases and deformities of the spine.

### Motor exercises and initial writing

In order to successfully train the child for writing, which is a very complex process, as the letter is written with only one movement of the hand, lines of equal thickness, it is necessary to develop its motor skills using the motor exercises. Hand of the first grade pupil is not sufficiently developed for precise movements, specially treated abilities related to delicate operations (Milatović, 1990), what requires writing printed and cursive letters in particular, not only Serbian alphabet and the alphabet,

but also all other graphemes that are applied to written communication.

In order to prepare for the start of writing it is necessary to influence on the development of small hand muscles by motor exercises; develop and release the arm, hand and fingers, and develop coordination between arm movements and activities of the eyes. Such exercises are carried out gradually and systematically and they are organized through the game. The importance of the playing ways of organization of motor exercise is in that, as many standard exercises to develop hand, wrist and fingers, which are described in the methodological literature, are stereotyped and monotonous to children, like the following work requirements:

*Stand up! Hold out your hands! Open your hands! Close! Open! Close! Open! Close! One - two! One - two! Etc. Faster and faster* (Milatović, 2013).

Each repetition of the same exercise becomes monotonous to the children. The consequences are far-reaching, and are manifested in a loss of motivation for their physical activity later in life. “The current school physical education does not match the capabilities, needs and abilities of students. Well-established content and methods did not significantly affect the development of physical abilities of students and it is established that they lag behind the biological growth and development” (Zrnzević, 2013). Routine behavior of teachers in physical education classes, stereotyped performance of the warm-up exercises in the initial part of the class without any creativity in their design and execution, leads to the fact that these actions become tiresome for children, they look at it as a “necessary evil” necessary “boring preparation” before they have a chance to deal with what they like to play.

Creative design of motor exercise is necessary for the development and release of the fingers, arms and hands to start writing, their organization through the game, which will often give you a competitive nature, will affect the children unconsciously, without coercion and compulsion, to like physical activity in general, and when it comes to writing, unconsciously to prepare for letter writing and gaining nice handwriting. Beautiful handwriting is quite neglected category in the modern information society, in which writing is equal to typing, so many highly educated people not only do not write very much, but often have a problem to remember how individual voices are grapheme represented.

So, instead of stereotypical exercises to stretch your hands, open and close the hand, we can arrange a game that the teacher can call *Bird in the Nest*. The game is done in the open air, and the teacher together with the learners invents the look of the nest. It may represent a circle sketched with a chalk or a hoop. The number of nests is for one less than the number of participants in a game and that brings the dynamics and gives it a competitive character. Students run free, hands outstretched, mimicking the flight of a bird. At the sound of a whistle or teacher’s shout - Nest! – the pupils shelter in the near-

est nest. It is possible to introduce different variations of the game. Thus, in the center of the nest can be a ball that would constitute a bird egg, and after the hide in the nest, it is necessary that the student threw a couple of times and project the ball from one hand to the other.

Imitating the summer birds, with arms outstretched on the go (students waving hands) children develop and release the muscles in the arms and fetch the center of the circle (the nest) balls and her shuffling from hand to hand, develop hand and exercise coordination between hand movements and “the eyes activity”.

A practice *Planes taking off!* may be carried out in order to exercise and release muscles of the arms (Dimitrijević, 2000). At the shout - Planes taking off! – children raise their hands, straighten them at shoulder height and raise them up - down, imitating the flight of aircraft. At the cry – Plane lands!– children gather hands to the body. It is possible to introduce different variations of the game, so that at the cry that planes land the children change body position from upright to squat.

A practice *Driving a Car* can be organized to release hand muscles. This exercise can be organized in the classroom.. Students sit and mimic to hold the wheel and drive the car. The steering wheel can be made of a cardboard cut in the shape of a circle, in the center would be drawn a smaller circle which would represent a siren. At the shout of a teacher – A pedestrian! – a pupil holds the wheel with one hand, and with the other hand he presses the siren with his index finger. At the shout of a teacher– A curve! – students continue to hold the steering wheel with one hand, and the other is down, it collects its fingers imagining to hold gear, and shifts from a higher speed at lower. In the part of the game where the steering wheel is held with one hand, the teacher does not suggest to the students whether it will be left or right hand, but allow them to freely choose on their own. Not imposing that certain exercise activities must be performed with a certain hand, especially the right one is important for the learning process of writing, because a certain percentage of children are left-handed children. The left-handed child is often exposed to various pressures that are inconsistent with his biological constitution and they are imposed by our civilization that is predominantly right-handed. In the past, left-handed children are even drilled to be right-handed, which can have various consequences, as violent drilling can damage, primarily centers for speech, “the speech centers and centers for the movement of arms are in the same hemisphere of the brain, ie. for the left–handed are in the right hemisphere and for the right–handed are in the left hemisphere“ (Matić, 1986). The assumption of correct speech is “solid localization of speech centers only on one hemisphere” (Sovak, 1968), and the numerous consequences of violent transformation of the left-handed into right-handed suggested by many methodologists, and they emphasize, like Matić: changes in behavior (timidity, aggression, work resistance, fluctuation of attention, delays in developing speech and stuttering, as

well as disorders of reading and writing: dysgraphia and dyslexia (Matić, 1986). And when practicing motor skills with children, certain activities to be performed exclusively with left or right hand, should not be imperative. Clumsy child in the exercise, for example, catch balls exclusively with right-hand, if it is left-handed, may cause sneer by their peers, and thus enhance the uncertainty and the withdrawal of a child.

The actual quality of motor exercises depends on the creativity of the teacher, his imagination and inventiveness. Thus the training of three fingers which held the pen can be implemented in numerous, to children interesting ways. An example of such an exercise is *Fly, fly*. The exercise is being organized in the classroom and children with three fingers which hold a pencil, gently raps on the desk while the teacher pronounces the names of the various creatures, objects and phenomena. When you say the name of the term that flies, the pupils raise their hands in the air and move up and down fingers that are involved in the game. And this game is competitive, it is particularly interesting for children because it is bright and every mistake causes laughter. Exercises, in which students improvise or really hold a pen in the air and thoughtfully write lines or patterns, can be also organized.

Child’s hand must be relaxed during the writing process. It can be bended at the elbow, while the hand bends in the wrist and makes natural movements. A number of games that encourage children’s artistic expression can be combined with motor exercises, such as: drawing in the sand, making different geometric shapes and patterns of the stones, sticks or twigs, thus teaching native language, physical education and art, combine with each other in realizing educational purposes.

During initial reading and writing skills is extremely important to pay attention to good posture while performing these activities, and the teacher has a variety of exercises to promote and maintain good posture, and in particular, to strengthen the back and abdominal muscles and stretch the chest muscles. They can be arranged in a variety of games that will exercise the mobility and flexibility of the spine, ankles and strengthen foot muscles. In such games it is possible to introduce elements of exercise, which, through the development of fine hand muscles and releasing the hand, act as the preparations for the writing. An example of such a game created just for the purpose of this work is a game *A Small Ant*. A pupil imitates the movement of ants by crawling, which affects the strengthening of the back muscles and mobility of the spine, and imitates its diligence by gathering, only using the fingers that are used in writing, certain small items left on the section of the road. The aim of the game is to collect as many items as soon as possible.

A game *Riding a Bicycle* in which the student lies on his back and ride a bike, imitating legs pedaling, affects on the strengthening of the abdominal muscles and holding an imaginary steering wheel or improvised in the hands, as in the play *Driving a Car* at the same time

influence the development and release the hands from the elbow. These games are just some of the examples of how to establish a correlation between the teaching of the native language and physical education and show that motor exercises are necessary prerequisite for practicing writing letters and acquisition elements of good handwriting.

### Breathing exercises and initial reading

In first grade, a child learns to receive information in written form in order to read. Reading is a complex and under-researched process and the teacher must be well informed of its specificity in order to equip students to better master this skill, whose adoption and learning does not end at the beginning of school, but it is improving lifelong.

In the methodical literature, reading is defined as a complex physiological activity whose specificity are “formulated as: physiological and linguistic foundations of reading” (Smiljković & Milinković, 2008). Within the physiological framework there is a need to know the operations that make up the reading process. The major roles in them have the sense of sight and the speech organs of a man. The eyes during the reading process do not move continuously along the code letters, but slip by and stop. That stopping, i.e. the quiescence of the eyes is called fixation and it can be read only for its duration, because in this period there is recognition of certain graphics characters. In the process of reading fixation occupy about 90% of the time, and the eye movements, which jump from one fixation to another, only about 10% (Kobol, 1977). The reading is also done during the fixation, so at the beginners and during the reading of some serious texts, the number of the fixation and its duration is increased. Speech organs of a man during the reading process are involved in the process of articulation of sounds. Phonation (air) stream moves from the lungs, passes through the trachea and goes into the throat where muscle folds, vocal cords are located. Under the pressure of phonation power, the vocal cords can occupy different positions and flashing. From the speed of their flickering depends the resonance of the voice and creates a ton. In the pharynx and oral cavity voice gets final form, depending on the speech organs involved in its formation: the tongue, jaw, teeth, hard and soft palate and lip.

Speech organs during the process of reading lag behind the sense of sight (Stevanović, 1981). A simple experiment can serve as an example of the above. If a good reader closes the book, he will be able to say a few words after that. From the above we can see that the process of perception precedes the speech. Only the beginners, or the students who have overcome the initial reading, do not lag behind.

Speech organs in the process of reading are directly connected with the process of breathing, and the exchange of gases between the organism and its environment. “Without air mass that is pushed from the lungs

by expiration to the speech organs would not be possible to produce sounds, which mean that it would not be possible to speak. Therefore, it takes an optimal breathing pattern, i.e. breath fully (so – called costal – abdominal breathing or intercostals breathing). It should avoid the improper posture, which causes the immobilization of certain parts of the lungs, reduction in their capacity, and thereby reducing the mass of air needed for the production of votes (so-called “clavicular and abdominal breathing”).

The quality of breathing affects the process of reading. “When a child breaths irregularly, it improperly pronounce certain sounds, irregularly reads as phonation current does not have a natural flow and movement so more or less deformations are occurred” (Milatović, 1990). The teacher should teach children to master the breathing process while reading, which is called the phonation or voice breathing, because it consciously control the process of breathing, or residence time of air in the lungs, because breaths should not be too close. Problem when reading occurs when the student does not inhale a sufficient quantity of air, and they catch the air there when physically feels the need for it, “not subjecting the breathing to what he reads or says” (Novaković, 1980).

Thoughtful entirety of the sentence imposes the control of breathing. The sudden need for air and breathing make pauses in inappropriate places, which can disrupt the meaning of the text. For example, in the short story *Aska and the Wolf* by Serbian Nobel Prize Winner Ivo Andrić, allegorical story about the effect of art on man, pauses in breathing coincide with the semantic focus of the text, which will be seen in the example of sentences that metaphorically show the transformation of the cruel nature under the influence of art.

*So - the new wonder! – and wolf's amazement has been turning more and more to admiration, which is completely unknown in the wolf race, because if the wolves could admire anything in the world, they would not be what they are* (Andrić, 2011).

Pauses in breathing while reading this sentence coincide with the pauses imposed by the punctuation marks, primarily comma and line. Inadequate hesitation for taking air and dropping it in places that do not match with the thought specializations of the literary text disrupts its sense. This reading practice breaks the unity of the whole sentence meaning and destroys the emotional and aesthetic impression during the reception that will be showed by putting a pause inadequately, or segmenting the whole text which do not coincide with his emotional and meaningful values.

Breathing exercises are necessary to chant loudly, clearly and cleanly during the reading. Improper articulation causes numerous disorders of articulation, which belong to the largest children's and speech disorders and they are manifested as: distortion, substitution, omission, sigmatism, parasigmatism, rhotacism, haplology, metathesis, and many various disorders of articulation in the form of softening votes. (Stakić, 2013). Articula-

tion disorders are the most common speech disorders, because they occupy 68% of the total number of voice disorders (Milenković, 2012: 37).

Despite the importance of proper breathing in the sound pronunciation process and quality of reading, teaching expert Milatović indicates that almost no one deals with the breathing technique in Serbian schools, “although the exercise of this kind contribute to better speech and reading. The aim of these exercises is to achieve cost-effective, healthy and disciplined practice” (Milatović, 2013). The exercises described in the methodological literature are mostly adult-oriented and aimed at gradual increase in residence time of air in the lungs and strengthening individual physical capacity. Most of them are based on the counting, which length extends during the retention of air in the lungs (Novaković, 1980).

We will describe some of the breathing exercises that can be applied by a teacher in order to strengthen the respiratory organs:

1. Pupils breathe quickly through the mouth, deeply, and then they slowly release the air through the nose, while their mouths are shut.

2. The air is inhaled, whereby the stomach is pulled to the maximum, and it is breathed out slowly through the mouth.

3. In a standing position with the correct posture, evenly inhale and exhale through the nose, where only the respiratory organs are moved, evenly inhalation and rises through the nose, and the hands, feet and other parts of the body are calm and relaxed (the same exercise can be performed in the supine position on a hard surface).

In addition to the above mentioned exercises, and various activities organized in the form of games affect the strengthening of respiratory organs, such as: creating and blowing the soap bubbles, extinguishing candles, blowing balloons, different games onomatopoeia. in which the blowing wind whistle, the sound of waves is imitated. The teacher during the organization of these activities manifests creativity and stimulates imagination and competitive spirit of the pupils, which will be presented in the game *Balloons*. Pupils are divided into groups according to the balloon colour. The objective is to inflate a balloon as much as possible from one attempt, and then to align the time of exhalation with the time of releasing the air from the balloon. The same game can be organized as extinguish coloured birthday candles. The pupils are divided into groups according to the color of the candles, the winner is the group which members managed to extinguish the largest number of the candles at once.

We must emphasize that the goal of the exercise is not to reach a maximum time limit on the duration of the individual stages of breathing, but to strengthen the children’s respiratory system and to learn proper and balanced, rhythmic relationship between inhalation of air, its retention in the lungs and exhalation.

### Concluding Remarks

The mutual dependence of motor exercises and breathing exercises and nice quality writing and reading, shows the role and importance of these exercises in the pupil’s preparation for learning initial reading and writing, and the correlation between the subjects, physical education and native language. It is very important that the exercise is not stereotyped and monotonous, but rich and diverse, and to be organized in the form of playing activities. This will further motivate the students and the class to get the necessary dynamics, because the attention of students at the age of initial training can not stay longer in one activity.

Motor exercises and breathing exercises are not created in isolation from one another, but they are observed holistically in conjunction with the other exercises. Their performance is not limited to physical education classes; they can be also performed during the native language courses, as well as various playing activities where students are motivated to individual stages of work. They can also be organized in the context of other subjects, on a trip during the classes that take place in nature and the outdoors, and, whenever possible, to establish a correlation with teaching facilities and other items.

The success of the pupil, not only in the teaching of the native language, but in all other subjects, during the time of its entire schooling, success in business which he will deal with, overall impression left on the society, depends on the quality of reading and writing. Many bad habits, which may be acquired in the initial stage of schooling, such as nasal pronunciation of the sounds, affectation and bad emphasis in reading, are much more difficult to correct later. Some of them, such as improper posture can have serious effects on human health. All the facts speak about the huge importance of physical education and its primary goal “to encourage and develop physical and medical fitness” is not just for education, but for the entire life of a child and a man. Quality of life, work ability, speed and ability of acquiring knowledge are directly linked and depend on the physical health.

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