

Psychomotricity development in visually impaired children through synchronous group dance - work strategy

Dezvoltarea psihomotricității copilului deficient de vedere prin dansul sincron de grup-strategie de lucru

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Abstract

Background. It is well known that the level of physical development in children with visual impairments has a slight difference from normal due to reduced motions or to lack of movement, which cannot contribute to the development of weight, size, muscle mass, strength and endurance adequate for chronological age. Young visually impaired children manifest sharp disorders of spatial behavior, mainly targeting spatial orientation, spatial relations between objects, movement coordination in general and in limited space (referring especially to the space for reading and writing). The visually impaired and blind children's knowledge of body features includes manifestations such as not knowing various parts of the body, confusion or inability to name them correctly, the most common situations being related to paired organs; reduced ability to correctly identify the partner's body schema or correctly identify it in pictures.

Aims. Synchronous group dance performed by visually impaired children is aimed at training and developing general motor skills and coordination of movements; formation and development of the organizational capacity of the body scheme; formation and development of perceptual-motor structure shape, size and color; formation and development of perceptual-motor spatial structure; formation and development of perceptual-motor temporal structure.

Methods. This article is intended as a presentation of dance teaching techniques for the visually impaired and blind and a recognition of the positive effects of dance on developing their psychomotor abilities.

Conclusions. We believe that using synchronous group dance for children with visual impairments improves their orientation and mobility characteristics both in large spaces and smaller areas. Benefits are body knowledge, effective use of movements and educating the real sense and meaning of beauty.

Keywords: visually impaired, psychomotricity, synchronous group dance, blind.

Rezumat

Premize. Este binecunoscut faptul că la nivelul dezvoltării fizice, în cazul copilului cu deficiență de vedere, se constată o ușoară diferență față de normal, datorită lipsei mișcării sau mișcării reduse, care nu poate contribui în mod corect la dezvoltarea greutatei, taliei, masei musculare, forței și rezistenței în mod corespunzător vârstei cronologice. În cazul deficiențelor de vedere la vârste mici, apar dereglări accentuate ale comportamentului spațial, în principal fiind vizate orientarea în spațiu, raporturile spațiale dintre obiecte, coordonarea mișcărilor în spațiul larg și restrâns (mai ales în spațiul destinat scris-cititului). Somatognozia la ambliopi și nevăzători se manifestă prin particularități precum necunoașterea diferitelor părți ale corpului, confuzia acestora sau incapacitatea de a le denumi corect, cele mai des întâlnite situații fiind legate de organele pereche; capacitatea redusă de a identifica corect schema corporală a altcuiva sau de a o identifica corect în imagini.

Obiective. Obiectivul central al studiului a fost îmbunătățirea psihomotricității, atenției și memoriei auditive. Dansul sincron de grup realizat cu copiii cu deficiențe de vedere vizează formarea și dezvoltarea motricității generale și a coordonării mișcărilor; formarea și dezvoltarea capacității de organizare a schemei corporale; formarea și dezvoltarea structurii perceptiv-motrice de formă, mărime și culoare; formarea și dezvoltarea structurii perceptiv-motrice spațiale; formarea și dezvoltarea structurii perceptiv-motrice temporale.

Metode. Acest articol se dorește a fi atât o prezentare a tehnicilor de predare a dansului la nevăzători, cât și o recunoaștere a efectelor pozitive pe care acesta le poate avea asupra psihomotricității deficientului de vedere.

Concluzii. Considerăm că prin utilizarea dansului sincron de grup la copiii cu deficiențe de vedere se pot îmbunătăți caracteristicile de orientare și mobilitate, atât în spațiu larg, cât și în spațiu restrâns ale acestora, beneficiile vizând cunoașterea corpului, utilizarea mișcărilor în mod eficient și educarea simțului pentru frumos.

Cuvinte cheie: deficient de vedere, psihomotricitate, dans sincron de grup, ambliop, nevăzător.

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Introduction

Visual impairment has various degrees, depending on the deterioration of vision, the limits being amblyopia and absolute blindness (congenital). Amblyopia is the reduction of visual capabilities in various degrees, regardless of etiology and severity, which is maintained after appropriate correction and involves a decrease of visual acuity to less than half.

In 1912, the leading forerunner of Romanian Special Education, Dimitrie Rusticeanu, gave the following definition: *in a scientific sense, blind is the eye that does not feel the light at all, so it is not able to observe day and night. Blind in a practical sense is an individual whose power of seeing in both eyes is forever damaged and is not curable, so he cannot go alone on foreign roads. So, blind is the one who at a distance of one meter is unable to count the fingers of the moving hand. Suitable to be admitted to the institute for blind are children who possess an ability to see so insignificant that no eyeglasses can help them see the alphabet letters, therefore they cannot take part in education, as well as those adults who, because of acquired myopia, cannot meet the call that claims competence of vision* (Stănică et al., 1997).

In terms of educational definitions, visual impairments are interpreted according to the type of education that can be achieved by the visually impaired person. So in educational terms, amblyopic subjects are those who because of deficient vision cannot attend regular school without prejudice to their eyesight or their educational development, but can be trained by special methods involving sight. A blind person is one that has no vision or whose eyesight is so diminished that it requires educational methods that do not involve vision (Miller quoted by Stănică et al., 1997).

In young visually impaired children, sharp disorders of spatial behavior occur, mainly targeting spatial orientation, spatial relations between objects, coordination of movements in general and in limited space (for reading and writing).

The body image can be fragmented and disturbed (Koch, 2008).

Child motor and mental stimulation should begin at birth by the influence of family stimuli (Albu et al., 2008). Also, we need to emphasize that blind children and those with more complex needs may need additional support for activities involving movement along circles, for games involving change of position or in writing activities (Bowen, 2010).

In special schools for the visually impaired, sporting activities, specific orientation and mobility therapies are carried out. However there is a need for optional activities such as sports and recreational games, arts and Sports for All activities (ex. dance). The curriculum does not contain such optional subjects. These disciplines would cover the effects on both harmonious physical and mental development.

When a child discovers new alternative ways of interaction, self-transformation and rapid improvement in self-image is guaranteed (Cucu-Ciuhan & Vasile, 2010).

The therapeutic effects of these activities are not yet

fully investigated.

I often think it is a shame that the therapeutic role of Arts is not recognized in the mainstream school curriculum (Comte, 2009).

Dance itself has been attributed a curative power, due to which dance (and movement) therapy has been developed in recent decades and follows a specific therapeutic approach. It is believed to have a positive impact on the welfare of people with social, physical or psychological disabilities (Kiepe et al., 2012). Importantly, regardless of the learning theory, we must emphasize that learning is always situational depending on the personal characteristics of the individual. Learning is constantly related to the previous learning experiences and current energy level of the person (Kivijärvi, 2012).

However, in some states, after the morning routine, students participate in academic programs and special classes such as art and music for a period of two hours (Butler et al., 2010).

We consider psychomotor counseling important, whose main objectives are studying individual motor capabilities compared to standard motor possibilities of age, sex and social status, as well as transfer opportunities in order to improve the quality of life, establishing the most effective means of prevention and intervention (Dumitrescu et al., 2013).

Therefore, many experts address physical, mental and motor development in all its complexity, as these processes can occur simultaneously (Albu et al., 2008).

To reduce these characteristics, a very popular activity among visually impaired children can be used, synchronous group dance. In addition to being a beautiful activity, it also has the advantage of stimulating and involving throughout the artistic act all body segments, also educating the psychomotor component of the student.

The way in which teachers use postural movements along the space in relation to children determines the feeling of reassurance of the latter. However, there is no formula for the construction of a safe area. Children respond differently at different times in different spatial configurations, all depending on their history, their temperament, their condition and other factors (Betty, 2013).

Objectives

The reference objectives of this strategy are consistent with the 2008 curriculum of educational activities, the Psychomotor Education chapter, and are the following: formation and development of general motor skills and coordination of movements; formation and development of the body scheme organizational capacity; formation and development of the perceptual-motor structure of shape, size and color; formation and development of the perceptual-motor spatial structure; formation and development of the perceptual-motor temporal structure.

We believe that all these objectives can be achieved through synchronous group dance, involving staged exercises that are in line with these objectives.

Hypothesis

Synchronous group dance for children with visual

impairments can improve their psychomotor development level.

Material and methods

We mention that, in agreement with the Declaration of Helsinki, the Amsterdam Protocol and Directive 86/609/EEC, the study case procedure was approved by an ethics commission within the Special School for the Visually Impaired, Buzău, Romania, and that we obtained the written consent of the legal guardian of the subjects.

The research protocol

a) Period and place of the research

The study was conducted at the Special School for the Visually Impaired in Buzău, over a period of 2 years, between September 2012-September 2014.

b) Subjects and groups

This research included 30 children with amblyopia, aged 14-16 years, both boys and girls. Of the 30 subjects, 18 were girls and 12 boys.

c) Tests applied

In the initial and final testing we applied the Bender-Santucci perceptual-motor test (Vlad, 2000) and the Attention and visual memory test, author Anca Rozorea (Vlad, 2000). Quantitative analysis of efficiency in the Bender-Santucci perceptual-motor test was aimed at comparing the total score obtained by the subject to the average performance (the standard) of the subject's age group. Based on this reference, different levels of success can be established: a high level 40-50 p; a medium level 25-40 p; a low level 10-25 p.

The Attention and visual memory test evaluates visual attention, visual memory, the sign-object association ability, the speed of execution of a task that involves visual function. The task is to find and note the sign-object correspondence, for the first two rows using the model, and for the next four rows without a model. Working time is 3 minutes. Scoring is based on the number of correct and wrong answers on each row. The maximum number of points that can be accumulated is 72.

Thus, depending on the number of correct responses, subjects fall into 3 categories: good visual memory 50-72 p; average visual memory 30-50 p; poor visual memory 0-30 p. After applying the initial tests (TI), following the scores obtained, we conducted the intervention period involving the students' participation in dance activities, then final testing (TF) was performed. Activities were carried out once a week as part of the afternoon program, and lasted 60-90 minutes.

Presentation of the work plan with visually impaired children

In teaching synchronous group dance to children with visual impairments, it is necessary to consider structuring the process into three main areas: a) Arrangement of the dance space; b) Teaching-learning of dance figures; c) Encouraging artistic expression through dance

a) Arrangement of the dance space

Like in the case of normally sighted subjects, the strategy of setting the stage for children with visual impairments must meet a set of rules; the children's dance

space must be organized depending on characteristics such as: type of deficiency and its degree, height, existing motor skills.

Regarding the first feature, a number of explanations are required for a better understanding of organizational strategies in the dance space.

In the strategy of setting the stage for dance for visually impaired children, organization must take into account the specifics of each child. Thus, we consider as adequate the placement of blind students in the middle of the group or according to the shape of the dance space, right in front of their peers with residual vision (amblyopia) or interspersed with amblyopic children.

Because of the lack of vision, the blind child does not have the risk of attention disruption due to visual stimuli, which is common in amblyopic children. Consequently, the blind child represents the pillar of the group, not being disturbed by visual stimuli such as people, scenery or repositioning of the group during the dance.

A blind child who has correctly acquired the specific motor structure of dancing figures in multiple dance schemes can be positioned in the center of the group. Furthermore, he can be a visual landmark and support for amblyopic peers who can rely on him for orientation during the dance or can have an immediate control of movements when a disturbing stimulus occurs and recover position by watching the blind peer.

As a rule, the blind, using their attention and memory during any activity, manage to correctly acquire the scheme of each motor structure taught by the teacher. Difficulties are encountered, however, in understanding and executing the figures, but not regarding the order in which they should be executed.

It is considered necessary to put the scheme of the dance group arrangement on paper, showing the shape of the group in the dance space.

It is to the students' advantage to use for dance group arrangements geometric shapes such as triangles or circles, or shapes which can be easily constructed from geometric circles representing the students. Large circles represent blind students and small circles represent amblyopic students.

So, for amblyopic students, a bolded or highly colored drawing is recommended, which must indicate the precise position of each child, each position being represented as a circle in the visual space on paper. This material, specially designed for tactile identification (in relief) and magnified, can be used for the students' mental organization of their own and the other students' positions throughout the dance.

To effectively educate children with residual vision, each child is asked to recognize their position on the paper drawing; the circle representing the child can be colored in the case of amblyopic children. It is recommended to use the same color for two students who are in a symmetrical position relative to the pawn of the group, which is usually blind. If the group is larger, multiple colors can be used. Also, the child can be asked to identify the children before and behind him, all children on the same row, on his left or right. This is how children will know their own and the other children's positions throughout the dance, practicing the left-right and front-rear orientation, in relation to their

body schema and to the central landmark of the group, the blind child.

In order to develop and educate the orientation and mobility of the blind in the space dance, these are asked to perform the same exercise by identifying their position in relation to that of the other children and to the whole stage area.

The blind child's position will be highlighted for:

- Amblyopic children, by coloring the contour of the circles representing them with black and by larger size circles, which are the most easy to perceive.

- Blind children, by highlighting the circles that represent them using the Piaf device, with larger dimensions of the circles compared to those representing amblyopic children.

Also, the amblyopic children's position can be better highlighted for:

- Amblyopic children, by drawing circles with black contour or coloring the contour with strong colors, or by coloring the entire surface of the circle with black.

- Blind children, by highlighting smaller size circles than those representing children with blindness, or by writing the peers' initials in Braille on the circle surface, or by covering the surface of the circles with materials of different textures, each pair of children including the students from both sides of the pawn being assigned a certain texture (e.g. rough, smooth).

Along with this exercise, all dancers in the dance space will be identified by identifying their positions in the group. Each child will be handed an augmented Braille written copy to be used at anytime.

b) Teaching of dance figures

Phase 1

In the case of the blind child

Teaching all movements and motor schemes at this stage will be done without music, the purpose of this phase being the understanding and proper execution of dance figures, thus involving technical aspects of execution.

For a better understanding of the figures, the teacher should face the student, performing the dance figure while verbalizing every movement with details about the limb used, its position (ex. vertical/ horizontal/oblique), its distance from the body, the movement direction. The student is encouraged to touch each body segment of the teacher. This phase lasts until the student is able to reproduce verbally the movement structure, even if this cannot be reproduced in motor terms.

In the case of the amblyopic child

The teacher will face the student, performing movements in the mirror, verbalizing the actions. The teacher can stand on either side of the child, which is dictated by the child's eye that has the best residual vision, and if necessary, the dance figures can be executed by the teacher with his/her back to the student. This procedure allows to practice hand-eye coordination, hand-foot coordination, opposite hand-foot coordination, etc.

The support given by the adult to amblyopic children should be predominantly visual and verbal; physical support should be used only in certain cases in order to keep active the principles of perceptual visual learning. According to these principles, the use of residual vision

should be maximized in all learning situations, considering that amblyopic children tend to imitate blind subjects in orienting themselves using auditory and tactile stimuli, although they are not blind. So, eye-motor coordination and the visual control of movements should be encouraged during the dance. Amblyopic children suffering from a degenerative disorder who have a risk of loss of eyesight will benefit from all modalities for the stimulation of the senses.

Phase 2

The teacher faces the student during the execution of the dance figure, while verbalization of movements is maintained along with physical support provided to the student, the teacher manipulating the child's limbs. We believe that each dance figure should be decomposed in stages, and each movement should be practiced until the whole dance figure is understood by the student and even more, reproduced.

It is recommended that the teacher handle each segment of the child's body involved in the structure of figures, for a better understanding of these. Gradually, physical help from the teacher should diminish from grasping and manipulating the body segments with all fingers to using a single finger, initially for directing the limb and its movement, subsequently with a reassuring or positive feedback role.

Phase 3

After the motor structure of the dance figure has been understood and reproduced by the child, its execution with music, according to the rhythmic structure of a chosen melody can be initiated. Now is the time to highlight the artistic component of dancing. Rhythm in music refers to an organized sequence of sounds (Popovici & Matei, 2005). The execution of this phase requires dividing the melody in dance beats.

The student is invited to listen to the music, focusing on the musical instrument that creates rhythm, percussion, and the sounds of the instrument are counted. Thus, percussion beats are counted in groups of eight until the end of the melody. Usually a figure dance should last one beat.

For a better understanding of how to listen to percussion, children are asked to clap their hands whenever they hear the sound of this instrument, which can develop phonemic hearing, responsible for the correct discrimination of sounds. After the whole group of children has managed to clap in rhythm, they can move on to the next stage, clapping while counting the sounds of percussion in groups of eight.

After this step has been performed, the teacher will encourage students to execute dance figures, still keeping up the rhythm and counting the percussion beats.

The teacher will continue to stand in front of the blind child and in front or to the side of the amblyopic child, this time providing verbal support in the rhythm of the music, counting the beats and encouraging the children's artistic expression. Motor schemes will be executed faster than during their performance without music, when the teacher's attention was focused on their understanding and proper execution by the child.

If all steps have been efficiently completed, it can be said that the purpose of the work has been achieved, the children being able to execute the dance figures in the

Table I
Mean percentage increase.

P value		Medium		Accentuated		Critical	
Visual Memory	Bender	Visual Memory	Bender	Visual Memory	Bender	Visual Memory	Bender
0.00182	1.00321	0.02	0.07	0.07	0.28	0.02	0.27

rhythm of the melody, following the previously practiced motor schemes, and at the same time, to link them together.

c) Encouraging artistic expression through dance

Once the students have learned to move and coordinate their entire body in the rhythm of music, as dictated by the motor structure of the dance figures, it is time for students to create their own motor structures, this time dictated by emotions and feelings derived from the musical harmony and rhythm of the melody.

Children are invited to move as they feel like moving and verbalize if possible the sensations they feel when dancing in one way or another. The child must be assured that there are no wrong or right figures, but only movements.

“Talk to me”, I asked my body. “I am finally listening”. “Dance me this moment”, the body replied (Lussier-Ley, 2010).

Once at this level, we can use motor dance schemes designed by children to continue the already learned choreographic structure, thereby helping the visually impaired to show their talent, creativity and grace, some of them demonstrating to be the exception that proves the rule.

“When people are relaxed and feel accepted and loved, they will take risks, try new things, discover new things about themselves” (Gordon, 2014).

d) Statistical processing

For data processing, we used Microsoft Office Excel 2007.

Results

According to deficiency grades as they appear in individual records for classification of the degree, we divided the subjects into Medium, Accentuated and Critical. Following data analysis, there was a mean percentage increase of 0.4% in the visual memory test score obtained at FT compared to IT, and a mean percentage increase of 0.42% in the Bender-Santucci test.

We also determined the mean percentage scores in the two tests, depending on the degree of deficiency, which showed an increasing trend, especially in the case of the Bender-Santucci perceptual-motor test (Table I).

An increase in the attention and visual memory test score as well as in the Bender-Santucci perceptual-motor test score was found. This is due to the vision deficiency which involves a certain degree of residual vision allowing the successful achievement of the test tasks. However, magnified copies of the test records were used to meet the children’s needs. Thus, the results obtained show that psychomotricity depends on the degree and type of visual impairment.

Discussions

Once they have acquired the language of movement, children can create and develop their own dance figures, enriching their vocabulary of movements, which can make

their own dance compositions unique. This newfound language enables them to clearly express their ideas in composition, performance and appreciation. If the movement idea can be explained to the teacher, a reference point for assessing the students’ work has already been established. Also, a range of movement concepts can be passed on from year to year to build up a profile of dance knowledge derived from the students’ experience, just as with other topics (1).

We consider that the impact of dance on the development of psychomotricity in visually impaired children, on the development of visual memory, on well-being and nervous relaxation could be a strong argument in favor of including this type of activity on the list of specific therapies in special education schools.

Conclusions

1. The results of the attention and visual memory test evidence an increase in the performance achieved by students, regardless of their degree of visual impairment, indicating a constant need for visually impaired subjects to use their residual vision.

2. The results of the Bender-Santucci perceptual-motor test reveal a significant increase in motricity, which is a constant problem of the visually impaired. Motor stimulation following synchronous dance sessions represents an important gain for the child, manifesting itself both in gross movements and fine movements that are involved in the graphic act.

Conflicts of interests

Nothing to declare.

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