

THE STUDY OF THE SPATIO-TEMPORAL ORIENTATION ABILITY OF STUDENTS PRACTICING SPORTS DANCE AT THE UNIVERSITY OF BUCHAREST

Daniela ADUCOVACHI^{1*}, Costinel MIHAIU²

^{1,2}University of Bucharest, D.P.E.S., Romania

* Corresponding author: daniela.aducovachi@g.unibuc.ro

Abstract. *Background.* Sports dance is characterized by a complex coordination, its most important components being, in our opinion: the segmental, general and multisegmental coordination; the capacity of kinesthetic differentiation; the static and dynamic coordination, the ability of spatio-temporal orientation; the ability to perceive and reproduce musical rhythm and tempo. Sports dance lessons are held in the University of Bucharest with students who opt for this discipline without having a prior selection. In sports dance, all the motor capacities are involved in different weights, but we proposed for this study to analyze from the perspective of the coordinative capacities, the spatio-temporal orientation.

Objectives. The subjects in this study are students in the 1st and 2nd years, belonging to different faculties of the university and they were divided into the control and the experimental groups. Both groups worked to test a salsa choreography during the lessons. In the experimental group, the choreography was practiced facing points 1,3,5,7, and in the control group, the choreography was practiced facing point 1. The test was realized with reference to point 5.

Methods. The working methods used are observation, testing method, statistical-mathematical and graphical interpretation method.

Results. The results were significantly better in the experimental group compared to the control group. The subjects in the experimental group were able to orient themselves better in space and time in a percentage of 85% and in the control group the percentage was about 30%

Conclusion. We believe that the orientation in space and time can be improved by simple means, prepared by the teacher in the sports discipline, the methodological work being implemented according to the groups.

Keywords: spatio-temporal orientation, choreography, sports dance lesson, testing.

Introduction

Sports dance, in the context of the instructive-educational process in physical education lessons, aims to preserve good motor skills. In addition to this, young people must acquire: special body posture; motor expression; learning, perfecting and consolidating the motor content specific to each studied dance, forming the general bases of the technique, acquiring a varied repertoire; musical knowledge, related to music in general and the musical genres that accompany sports dance, in particular; civilized behavior, learning good manners, the relationship between the sexes, civic behavior; mentally as balanced as possible with the development of the qualities of will, courage, perseverance, self-control; educating the ability to appreciate the motor actions of other subjects; educating the ability to appreciate one's own motor actions; development of coordination capacities; placement of the body and body segments in different directions and planes as correctly as possible; integration into the collective and the development of communication skills through motor actions and activities.



Like any sports discipline composed of technical content with an aesthetic-artistic character in accordance with music, a complex coordination capacity is needed to practice dance.

Coordination capacity can be defined as a complex psychomotor quality, which is based on the correlation between the central nervous system and the skeletal muscles during a movement.

The coordination capacity determined in particular, through the processes of control and readjustment of movement, allows the dancer to master his motor actions with precision and economy.

Two important authors of this area, Epuran, M. and Horghidan, V. (1994), place among the components of psychomotricity, alongside the body scheme, laterality, rapidity of ideometric movements and dynamic coordination (of the whole body and its segments), static coordination – balancing, perceptual-motor coordination (perception of space, rhythm and own movements).

The author, C. Pehoiu, 2010, emphasizes that "spatio-temporal orientation, together with movement combination and coupling, and with kinesthetic, balance, motor reaction, movement transformation and rhythm differentiation form the coordinative abilities. From our viewpoint, these are characteristic features with high levels of manifestation in a complex psychomotor act – valorizing the quality of one's talent – as well as indices pertaining to one's psychomotor intelligence and creativity. Spatiality is a reality sensed objectively as form, volume or depth, while temporality represents a direct knowledge of the duration of different phenomena and of the change of moments in the actions undertaken by man".

After studying several authors (Frey, Hirtz, Fetz, Mitra & Mogoş, Epuran & Horghidan, Ozolin, Letzelter, Gundlach, Weineck, Schnadel, Blume cited by Manno, 1996), we have noticed that from a terminological point of view the description of the notion of coordination has more versions, being a rather difficult term to quantify and classify.

Basically, general and special coordination capacities are distinguished.

General coordinative capacities are the result of polyvalent gestural training in different motor actions or sports. They manifest themselves in different areas of daily life and in sports, in that certain gestural problems can be solved creatively. (according to Harre, D., Deltow, Ritter, 1984).

Special coordinative capacities develop more within the sports disciplines considered and, according to Ozolin, N. (1984), "with varied skills in sports technique depending on the discipline or of various combinations".

According to Blume, (1981) cited by Manno, R. (1996), cited by Tudor, V. (1999, 2002), cited by Şerbănoiu, S.(2002), Saulea, D. (2005) there is the following scheme:

1. the capacity to combine and couple the movements
2. the capacity to orient spatially and temporally
3. the capacity of kinesthetic differentiation
4. the capacity to maintain balance
5. the capacity of motor react
6. the capacity to transform movements
7. the rhythmic capacity

We proposed for this study to develop, through the means of sports dance, the capacity of spatial-temporal orientation of the students.

This ability allows changing the position and movement of the body in space and time in relation to a certain field of action. There are two fundamental forms of orientation that can be distinguished:

- in relation to moving objects, in relatively static conditions;
- body orientation in relation to fixed or mobile reference points.

In technical-compositional sports such as artistic gymnastics, rhythmic gymnastics, figure skating, sports dance, spatial-temporal orientation is highly required, but automation considerably reduces the role of the visual analyzer to strengthen that of the other analyzers. In the context of

sport dance, temporal orientation is related to the sense of rhythm and auditory analyzer, as this orientation is performed on specific dance steps in a certain musical tempo.

For a correct execution, a number of complex factors is needed, such as the fundamental cortical processes of excitation and inhibition through which the subcortical formations and the cerebral cortex can be able to send motor impulses to the muscle formations interested in fine, controlled, coordinated movement.

The auditory, visual, kinesthetic, vestibular, tactile analyzers have overall very important roles in achieving spatial-temporal orientation, each of them having a significant weight in realizing the most accurate execution.

“In terms of performance, from the multitude of psychic aspects and manifestations in the sphere of motor activities of mastery of the body, athletes depend on the accuracy of sensory information, differential thresholds of sensitivity that encompass the level of perceptual abilities on which the reception, processing and elaboration of information in relation to what surrounds them depend.” (Adam, A.M.,2022).

The purpose and objectives of the study

During the end of the semester when we worked on structures of dance steps linked in choreographies, we have aimed to develop the spatial-temporal orientation ability of the experimental group, through simple means, ready at hand of the teacher, using specific music and different exercises for orientation.

Hypothesis

If in physical education lessons having sports dance as a study discipline we use changes in working alignment, then we predicted an improvement of the:

- coordination capacity;
- adaptation to the change of spatial orientation;
- ability to maintain the tempo.

Methods. The working methods used are observation, testing method, evaluation, statistical-mathematical and graphical interpretation method.

The analyzed subjects

The subjects in this study are students in the 1st and 2nd years, belonging to different faculties of the university and they were divided into the control and the experimental groups. Each group had 20 students. Both groups worked to test a salsa choreography during the lessons. All the lessons were conducted in the gym of the Faculty of Law, where there are audio equipments and mirrors and where the subjects normally have their dance class during the academic year.

From a greater variety of methods for developing the ability of spatial-temporal orientation, such as:

- observing the other athletes/students, in motion and standing still;
- changing the spatial orientation of working during the lessons;
- moving in space on predetermined distances;
- using different spaces/marks than the standard ones;
- using unusual positions, situations and movements;
- the possibility of observing and self-observing through video devices and/or mirrors.

For this study we practiced the replacement of the spatial orientation of the subjects during the lessons in the experimental group, the choreography was worked successively facing points 1,3,5,7, and in the control group the choreography was practiced during the lessons only facing point 1. The choreographic content was made using the Latin American dance, salsa, and was interpreted on a specific melody with a duration of 2 minutes. The choreography is repeated several times during this musical interval.

All the students had to dance the choreography facing point 5. This choice was made by drawing lots of facing a dance direction. When evaluating each subject, the following was taken into account:

- respecting the choreographic program throughout the melody chosen as sound support;
- realizing the dance steps to the music.

Penalties:

- deviation from the choreographic program;
- for each deviation from the music.

The students' evaluation is a confirmative and ameliorative type.

Results

In the control group, out of 20 subjects, 9 deviated from the choreographic program, 5 failed to stay on the music, and 6 worked the choreography correctly and stayed on the music.

In the experimental group, out of the 20 subjects, 2 deviated from the choreographic program, and 1 subject went out of the musical tempo.

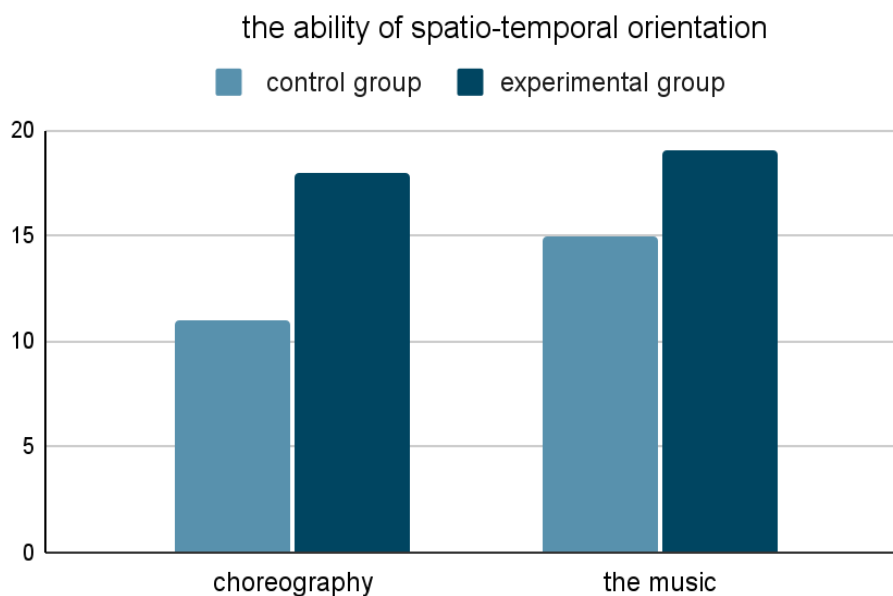


Figure 1. Results of the spatio-temporal orientation test

Conclusions

After the test results, we can conclude that the students from the experimental group made significant progress in terms of spatial-temporal orientation, the percentage of mistakes being very low (3 mistakes).

Therefore, the working methods proved effective for this level of preparation, and during the lessons a visible progress of some of the participants was observed.

The control group gathered a much larger number of mistakes (14 in total), the students being frustrated that they no longer had the marks they knew, some of them could no longer orient themselves in space and the discomfort created also led them to leaving the music.

We believe that the orientation in space and time can be improved by simple means, ready a of the teacher and the discipline, the methodological work being implemented according to the groups.

References

- Adam, Andreea, M.,(2022) *Influencing the rhythm and tempo ability in sports dance for athletes in the age group 12-13 years*, Gymnasium Scientific Journal of Education, Sports, and Health ISSUE 1, VOL.XXIII/2022,DOI:<https://doi.org/10.29081/gsjesh.2022.23.1.03>,
<https://gymnasium.ub.ro/index.php/journal/article/view/656>
- Dragnea A., Mate-Teodorescu S. (2002) *Teoria sportului*. București: FEST, p.100-250.
- Denisa-Mădălina Bălănean, Cristian Negrea, Eugen Bota, Simona Petracovschi,* and Bogdan Almăjan-Guță, *Optimizing the Development of Space-Temporal Orientation in Physical Education and Sports Lessons for Students Aged 8–11 Years*, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9497162/>
Published online 2022 Aug 27.<https://doi.org/10.3390/children9091299>
- Manno R. (1996) *Bazele teoretice ale antrenamentului sportiv*. București: C.C.P.S., p. 14-68, 135-148. 8.
- Moisescu, P., C., Gürbüz, A.,(2017) *Dezvoltarea capacităților coordinative prin jocuri de mișcare*, USEFS, Știința culturii fizice, CZU 796.012:796.015.31+796.333, Nr. 28/2 – 2017.
https://ibn.idsi.md/sites/default/files/imag_file/Dezvoltarea%20capacitatilor%20coordinative%20prin%20jocuri%20de%20miscare.pdf
- V. C. Luca, L.Mihăilescu, (2022) *Study on the Contribution of the Dancesport in Enhancing the Quality of Life in Visually Impaired Children*, Revista Românească pentru Educație Multidimensională, 2022, Volume 14, Issue 3, pages: 301-324, <https://doi.org/10.18662/rrem/14.3/611>.
- Ozolin, N., G., (1972) *Metodica antrenamentului sportiv*, Ed. Stadion, București
- C Pehoiu, 2010, *Spatio-temporal orientation development during the physical education class, with 5th and 6th form pupils*, World Academy of Science, Engineering and Technology International Journal of Educational and Pedagogical Sciences Vol:4, No:12, 2010, academia.edu
- Rață G., Rață B. C. (2006) *Aptitudinile în activitatea motrică*. Bacău: EduSoft, 318 p.
- Saulea, D., (2005) *Relația "Dans sportiv – Capacități coordinative" – în învățământul superior de nefprofil*, ANEFS, teză de doctorat, București.
- Schneider, W., Spring, M., Trischler, T., (1995) *La mobilite' – Theorie et pratique*, R. Gym. – Medicine du Sport Edition „Mosby”.
- Șerbănoiu, S., (2002) *Capacitățile coordinative în sportul de performanță*, Ed. Afir, București.
- Tudor, V., (2001) *Evaluarea în educația fizică școlară*, Ed. Printech, București.
- Tudor, V., (1999) *Capacitățile condiționale, coordinative și intermediare – componente ale capacității motrice*, București, Ed. RAI.
- Tudor, V., (1998) *Bazele biologice și psihologice ale capacităților motrice*, Referat doctorat nr. 2, București,
https://www.academia.edu/9278568/Capacit%C4%83%C5%A3i_condi%C5%A3ionale_intermediare_%C5%9Fi_coordinative_componente_ale_capacit%C4%83%C5%A3ii_motrice
https://www.scribgroup.com/diverse/muzica/CAPACITATILE-COORDINATIVE-IN-D85522.php#google_vignette
<https://www.scribgroup.com/sanatate/sport/DEZVOLTARII-CALITATIILOR-MOTRI91486.php>
https://fefsoradea.ro/fisiere/cadre/3_curs_didactica.pdf
https://ibn.idsi.md/sites/default/files/imag_file/Dezvoltarea%20capacitatilor%20coordinative%20prin%20jocuri%20de%20miscare.pdf