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## THE STEP METHOD IN THE TRAINING OF PEDAGOGICAL STUDENTS

**Abstract.** The main purpose of this study is to examine the extent to which students majoring in “Pre-school and primary school pedagogy” master the adaptation of mobile games for children with cerebral palsy through the STEP method. The training includes 47 third-year participants. It was conducted online during the summer semester of the academic year 2021/2022 and includes the following methods – lectures, discussions, case studies.

The combined assessment shows that the share of students who develop high-level skills needed to apply the STEP method in the adaptation of mobile games for children with cerebral palsy is the largest – 55.3%. 34% of the participants experience some difficulties in various aspects of the modification, as this determines their average level of proficiency, and in 10.6% the level remains low.

**Keywords:** inclusive education, adapted physical education, mobile games, children with cerebral palsy.

Cerebral palsy is a non-progressive disorder due to developmental brain damage associated with difficulty in movement and coordination. Symptoms vary depending on the location and degree of the brain damage. According to the topography, cerebral palsy is divided into monoplegia, diplegia, paraplegia, hemiplegia, quadriplegia. Depending on the neuromotor characteristics, it is defined as spastic, dyskinetic, atactic, and the derivation of this taxonomy is based on the dominant clinical features<sup>1</sup>. For physical education the most important is the functional classification related to the available abilities. Physical education teachers need to be aware of the limitations in body movements and other physical barriers that children with cerebral palsy need to overcome. The challenges of including them in motor training are related to the weakness and spasticity of their muscles and balance disorders. Depending on the severity of the injury, they may need different aids to move around during exercise<sup>2</sup>. Games, including mobile games, are interpreted as the most serious activity of the

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<sup>1</sup> Georgieva D. Alternative communication in children with multiple disabilities. Stara Zagora, 2019.– 74 p.

<sup>2</sup> Block M. A Teacher’s Guide to Including Students with Disabilities in General Physical Education. Baltimore, Maryland, 2016.– P. 248–250. P. 6.

child<sup>1</sup> and are the most acceptable form of physical exercise. By joining the plot, children with cerebral palsy become direct participants, have fun, enjoy themselves and forget about their problems<sup>2</sup>. Through their actions in the game, they gain cognitive and social experience, which is a prerequisite for the development of children's initiative and independence<sup>3</sup>.

The STEP method is used in the training of students majoring in Pre-school and Primary Education, future teachers of physical education in the kindergarten and the primary school, in order to adapt mobile games for children with cerebral palsy<sup>4</sup>. STEP is an abbreviation behind which stands the modification of the following four elements:

*Space* or the place where the respective game is played. It is related to the size of the playground, the distance to be covered, the distance between the participants or to the goal, the type and size of the equipment needed for the game.

*Task* or the manner in which the activity is carried out. It allows a change of activities or purpose, in accordance with the capabilities and needs of children, the rules aimed at simplification or implementation in facilitated conditions, the way to participate in various roles, the starting points for performing motor actions.

*Equipment* or the equipment used in the games. Possible modifications of the devices are taken into account as well as how each of them affects the actions performed in the game.

*People* or how people are engaged. Different participation options are possible according to the number of players, how they interact, what roles they are involved in and what is the level of their abilities.

Following the areas for modification in the STEP method and the guidelines for adapting physical activity<sup>5</sup>, various possibilities for the successful inclusion of children with cerebral palsy in mobile games emerge.

*For the space:*

- To create conditions for safe movement with the aid used by the child.

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<sup>1</sup> Georgieva D. Preverbal communication skills in children with multiple disorders. Pedagogical Forum, – 4. 2018. – 62 p.

<sup>2</sup> Shapkova L. V. Corrective outdoor games and exercises for children with developmental disabilities. – Moscow, – 127 p.

<sup>3</sup> Ivanova V., Siderova D. Projections of the game with motional performances in the process of literary communication at pedagogical interaction with 6–7 years old children. Activities in Physical Education and Sport. – 3 (2). 2013. – 177 p.

<sup>4</sup> Stevenson P., Black K. Activity Inclusion Model (AIM). Guidance incorporating STEP. England Athletics, 2017. URL: <https://england-athletics-prod-assets-bucket.s3.amazonaws.com/2018/11/the-inclusion-spectrum-guidance-2018-v2.pdf>

<sup>5</sup> Block M. A Teacher's Guide to Including Students with Disabilities in General Physical Education. Baltimore, Maryland, 2016. – P. 248–250. P. 6.

- To reduce the distance that must be covered, as fatigue occurs faster.
- To reduce the distance to the targets due to the general muscle weakness of the children and the lack of coordination.
- Changes in the size and height of the facilities should be consistent with the smaller capabilities of children with cerebral palsy.

*About the tasks:*

- Due to the difficulties in maintaining an upright posture for a long period of time, participation in the game should be performed from different starting positions, convenient for children with cerebral palsy.
- For maximum inclusion in the game, it is possible to add alternative rules.
- Outline safe areas in the playground where children with cerebral palsy are located.
- The motor actions should be performed under light conditions or should be changed so that they are within the capabilities of the children.
- Give rest to regain strength.
- To allow children to find their own way of doing different activities.
- The change in the rules of the games should be related to the strengths of children with cerebral palsy in an attempt to equalize strength.
- Introduce mutual assistance as a rule.

*For the equipment:*

- Use lighter devices that are attached to the arm, body or aid in case of muscle weakness.
- When there are coordination problems, larger, lighter and softer grippers should be used and smaller throwing devices that are immobile when hitting and kicking.
- Lighter devices move slower and give enough time for children with cerebral palsy to react.

*For people:*

- If necessary, include an assistant.
- The other children perform the motor actions in the same way as the child performs the equalization of forces.
- Groups should be divided according to the abilities and a simplified version of the game should be performed.
- In case of severe motor deficit, more static roles are to be chosen in which to include the child with cerebral palsy.

The main purpose of this study is to examine the extent to which students majoring in “Pre-school and primary school pedagogy” master the adaptation of mobile games through the STEP method. The training includes 47 third-year participants. It was conducted online during the summer semester of the academic year 2021/2022 and includes the following methods – lectures, discussions, case

studies. Solving cases involves transferring skills from related fields – physical education and inclusive education – as well as upgrading and developing specific skills to adapt the space, tasks, equipment and participation of people in mobile games<sup>1</sup>. The formation of skills in each area is determined by a three-point scale: can, can to some extent, cannot. The summarized result shows at what level – high, medium, low – students master the adaptation of mobile games for children with cerebral palsy using the STEP method.

59.6% of the respondents demonstrate abilities to adjust the play space so that the inclusion of children with cerebral palsy is optimal. They understand and apply correctly the guidelines for ensuring safe movement with an aid, assess according to the children's ability what distance to go in the game, how far the goal is, what are the dimensions and height of the equipment. 31.9% of the participants experience some difficulties, and 8.5% – insurmountable ones.

57.4% of the students did well in the search for the most comfortable position for motor activity of children with cerebral palsy and in adapting or adding rules related to their motor abilities. 34% find it difficult to simplify the rules without changing the purpose and basic motor actions of the game, and to find a way to perform under easy conditions. 8.5% of the respondents do not try to make changes, because they believe that if children have severely reduced mobility, they should not be involved in mobile games.

57.4% of the respondents fully understand how the modification of the equipment changes the gaming activity and that for more efficient play it is appropriate to have the devices attached to the children or mobility aids, and 31.9% – understand this but only to some extent. 10.6% of students fail to match the shape, size and weight of the devices with the motor abilities of children with cerebral palsy.

59.6% of the respondents are able to distribute the roles, determine the optimal number of participants in the game and the appropriate interaction between them. 29.8% of the students find it difficult to separate children according to their abilities and to include children with cerebral palsy in a more active motor role. Or they can only to some extent anticipate the involvement of people in mobile games. 10.6% of the respondents lack these skills.

The combined assessment shows that the share of students who develop high-level skills needed to apply the STEP method in the adaptation of mobile games for children with cerebral palsy is the largest – 55.3%. 34% of the participants experience some difficulties in various aspects of the modification, as this determines their average level of proficiency, and in 10.6% the level remains low.

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<sup>1</sup> Petrov P.D., Temnikova M. Regarding transferability of the skills and the competency and their development in the course of education in mathematics in the primary school. Central Bohemia University Czech Republic, International conference proceedings, 2017. – 845 p.

The areas envisaged for adaptation by the STEP method are suitable for structuring the successful inclusion of children with cerebral palsy in mobile games. The difficulties of the students are related to their lack of experience – both life and professional ones, which makes them believe that children with movement disorders should not engage in physical activity or their participation should be as static as possible. Some of the respondents have difficulties in differentiating the specific motor limitations and residual abilities and hence in determining the appropriate changes in the play area, the tasks that each child has, the appropriate equipment and the way in which the participants will interact. It should be noted that in the conditions of online training the participants show relatively good results. When conducting training in simulated and real conditions, the level of mastery of adaptations by the STEP method will be even higher.

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