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FORMATION OF SKILLS FOR APPLICATION OF THE TREE METHOD

Abstract. The aim of the article is to analyze the degree of formation of skills for adaptation of mobile games for children with visual impairments by the TREE method. The training involves 52 four-year students majoring in “Preschool and primary school pedagogy.” It was held during the winter semester of the academic year 2021/2022, online and includes the following methods – lectures, discussions, case studies.

After conducting specialized training, 63.4% of the respondents have developed a high level of skills for adapting mobile games according to the TREE method, 30.8% in a medium level and 5.8% in a low level.

Keywords: inclusive education, adapted physical education, mobile games, children with visual impairments.

With the advance in medicine and technology, more children with visual impairments have the opportunity to study in a mass educational environment. Educational institutions are not yet able to respond to their changing needs¹ and create conditions for their successful involvement in all subjects, including physical education. One of the reasons for this is the lack of specialized teacher training.

Children with visual impairments are born with the same potential as their sighted peers. Usually, due to overprotection, they do not have the opportunity to freely explore their environment and participate in physical activity, which can lead to delays in perceptual, motor and cognitive development². Mobile games are the best tool for comprehensive development and education of visually impaired children. Through play activities they gain cognitive and social experience, which is a prerequisite for creating some initiative and independence³. The visually impaired child also loves to play and can be involved in almost any game if

¹ Georgieva D. Socio-cultural adaptation of children with sensory disorders in the Bulgarian socio-cultural environment, CBU International Conference Proceedings “Innovations in science and education”, Prague, Czech Republic, – Vol. 8. 2020. – 74 p.

² Block M. A Teacher’s Guide to Including Students with Disabilities in General Physical Education. Baltimore, – Maryland, 2016. – P. 230–237.; Haibach P., Wagner M., Lieberman L. J. Determinants of gross motor skill performance in children with visual impairments. Research in Developmental Disabilities, – 35. 2014. – 2577 p.

³ 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.

he is helped to learn and make the appropriate changes according to his or her individual characteristics¹.

There are various methods for adapting mobile games. One of them is TREE². Its name is an acronym, and behind each letter is an aspect of the sport that can be modified. The method has been adapted from the Australian Sports Commission's Disability Education program so that teachers can modify their activities to be more inclusive for children with different abilities. The modifications of the TREE method are aimed at ensuring maximum inclusion, development of skills, diversity, higher level of activity, change in game strategy and safety. It covers the following areas:

- **Teaching style** or looking for the most appropriate for all participants ways of communication and teaching methods.
- The **rules** can be simplified or changed according to the needs and abilities of the participants.
- **Equipment** with different sizes, shapes, colors, textures, weight is used.
- The **environment** is adapted to the venue of the game.

Based on the guidelines for modifying physical activity³ and the TREE method, various opportunities are created for adapting mobile games for the participation of children with visual impairments.

For the teaching style:

- The children's preferred methods of communication are used.
- For blind children, verbal methods are best, and instructions should be short and clear.
- All the details related to the game and its play are described verbally.
- Demonstrations are also possible for visually impaired children, which must be performed in their field of vision.
- Auxiliary motor methods are used as support in the performance of various movements.
- Physical assistance should be kept to a minimum so that visually impaired children are as independent as possible.

¹ Shapkova L. V. Corrective outdoor games and exercises for children with developmental disabilities.– Moscow,– P. 33–34.

² Special Olympics Australia. Playing for All – Delivery Guide. URL: https://schools.specialolympics.com.au/wp-content/uploads/2022/02/playing_for_all-delivery_guide-FEB22.pdf

³ Block M. A Teacher's Guide to Including Students with Disabilities in General Physical Education. Baltimore,– Maryland, 2016.– P. 230–237.; Rouse P. Inclusion in physical education. Human Kinetics, 2009.– P. 98–108.; Van Coppenolle H. Count me in – A guide to Inclusive Physical Activity, Sport and Leisure for Children with a Disability.– Leuven, 2006.– P. 82–83.; Winnick J., Porretta D. Adapted Physical Education and Sport. Human Kinetics, 2017.– P. 240–248.

- Tactile methods are used when all the others are not enough for the child to fully understand what and how is done in the game.
- The analytical method is applied for more detailed learning, using the capabilities of all the senses.
- A guide is included in the game.
- It is obligatory to talk to the child and ask for feedback on what they have understood and what they have not.

For the rules:

- Simplification of the rules of the game, in accordance with the smaller abilities of children with visual impairments.
- Gradual introduction of the rules of the game for easier learning.
- Avoiding physical activities that are not indicated for children with visual impairments is becoming the rule.
- Ability to equalize forces in games, all performing different movements without visual control.
- For better orientation in the direction of movement to have sound or tactile cues.
- Reduce the duration of the game due to faster fatigue.
- Decrease the number of participants in the teams if all are “blind”, or increase it – if the participation is organized in pairs “blind-leader”.
- Change in the way of marking points for successful inclusion of the child who cannot see.

For equipment:

- When children have residual vision, the devices have a contrasting, easily distinguishable color, when they are totally blind – the devices must emit sound.
- It is possible to attach them to children with visual impairments.
- According to the needs of the children, the desired result can be of different sizes, weights and textures.

For the environment:

- The site should be as safe as possible.
- The field should be well lit for better visibility in residual vision.
- All areas should be clearly visible in order to use residual vision.
- If the orientation will be performed only by sound, remove the side noise.
- If possible, the equipment should emit a sound to guide where the goal is and whether the task has been completed.
- If everyone is playing without visual control, the field should be smaller and appropriately limited.
- The visually impaired child should be acquainted in advance with the place of play – dimensions, equipment, all auditory or tactile landmarks.

- Do not change the situation without warning the child.

The aim of the article is to analyze the degree of formation of skills for adaptation of mobile games for children with visual impairments by the TREE method. The training involves 52 four-year students majoring in “Preschool and primary school pedagogy.” It was held during the winter semester of the academic year 2021/2022, on-line and includes the following methods – lectures, discussions, case studies. Through the analysis of the decisions of the cases it is established to what extent the skills to adapt the teaching style, the rules, the equipment and the environment are formed. The assessment for each area is based on a three-level salary: he or she can, can to some extent, can't. The summarized result shows the extent to which – high, medium, low – students master the adaptation of mobile games for visually impaired children using the TREE method.

Only 38.5% of students fully cope with the task of adapting or selecting the most appropriate ways of communication and teaching methods according to the specific characteristics of children. Often, in order for children with visual impairments to participate in mobile games to be as successful as possible, several different teaching methods need to be combined. This combination of appropriate methods proved difficult for more than half of the respondents – 51.9%. 9.6% of the respondents lack an understanding of the ways of communication and education of visually impaired children.

61.5% of the participants in the study are able to adapt the rules of the game so that children with visual impairments are successfully included according to their abilities. The share of respondents who have mastered these skills to some extent is 30.8%. They find it difficult to simplify the rules of the game optimally and to choose the most appropriate way to play them, so as to ensure equalization of forces. And 7.7% of students do not try to change the rules because they believe that visually impaired children should not be included in most mobile games.

69.2% of the respondents cope with the selection of devices according to the residual abilities of children – sensory and motor. 25% of the respondents cannot judge when the equipment really needs to be adapted, as in some games no changes are needed in this direction for the successful inclusion of children with visual impairments. 5.8% do not envisage changes, although in specific cases they are mandatory.

71.1% of students develop skills to plan all appropriate changes in the place where mobile games are played with children with visual impairments. 23.1% miss some important points, and 5.8% do not think of such modifications.

After conducting specialized training, 63.4% of the respondents have developed a high level of skills for adapting mobile games according to the TREE method, 30.8% in a medium level and 5.8% in a low level. Unfortunately, some students do not understand the concept of inclusive physical education. According to them, it is better for

visually impaired children to stay on the benches than to risk being involved in mobile games. This is one of the manifestations of overprotection, which slows down the development and progress in the achievements of children with visual impairments.

The TREE method for adapting mobile games is easy to use by non-specialists, such as future children's and primary teachers. The slight fluctuations that students show in adapting the elements from the different areas are related to the fact that the training is conducted only online. Under these conditions, it is difficult for some respondents to imagine the limitations of children with visual impairments and hence all the appropriate adaptations. These difficulties can be overcome by organizing simulation-based learning, where the formation of an even higher level of skills for working with the TREE method is expected, especially if training materials are provided, giving detailed and specific information about possible changes in each an area according to the abilities of children with visual impairments.

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