Applying “green playground” technology to enhance movement activities of preschool children in physical education classes

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Abstract

Purpose: To strengthen the overall health of preschool-aged children and increase their physical activity.
Methods: The study utilized analysis of scientific and methodological literature, pedagogical observation, pedagogical monitoring, pedagogical tests, and pedagogical experiments.
Tasks: Application of the "Green playground" technology in physical education classes at preschool educational institutions;
- Development of children's physical qualities (strength, endurance, agility, speed, and flexibility) and various movements (walking, running, crawling, jumping);
- Increasing overall physical activity in children.
Conlcusion: Overall, the “Green Playground” technology has proven to be an effective tool for comprehensively improving the health of preschool children, strengthening their physical and mental well-being, and preparing them for school. In the future, wider implementation and enhancement of this technology will serve to further increase children's physical activity.
Keywords: Preschool age, physical education, physical activity, “Green Playground” physical qualities, balance, innovation, healthy lifestyle.

Introduction

Further improving the education system worldwide and implementing innovative methods from the lowest levels of distance learning are among the most priority tasks of our time. This direction requires integration processes in education at various stages. In developed countries, the main focus of global scientific and practical research has become improving children's health, increasing their body's resistance to the current hypodynamia and other diseases, reducing the impact of external influences, eliminating and preventing physical inactivity, maintaining an active and healthy lifestyle, forming cultural and hygienic habits, as well as adapting to online educational resources in the context of the pandemic. This necessitates an increase in both the quantity and quality of the most intensive experiments in this field within the international educational arena.

Globally, pressing issues such as promoting an active physical lifestyle for preschool children and increasing physical activity of the new generation require systematic implementation of practical approaches. Key focus areas in world fundamental and applied research include: raising physically, mentally, and intellectually healthy children; developing physical qualities (strength, endurance, agility, speed, and flexibility); increasing physical activity in daily movements; developing various motor and sensory skills; organizing interactive learning; and guiding children towards sports activities suitable for their age and physical capabilities. Among important pedagogical and social issues, the most fundamental and relevant social criteria include: identifying and timely addressing factors hindering children's physical development; promoting active movement; preventing sedentary behavior; improving children's health; and developing their motor activity.

Results and discussion

The educational and upbringing processes in the preschool education system are carried out based on standards (State requirements for the development of children of early and preschool age) and the improved State Educational Program "Ilk qadam" (First Step)The Law on Preschool Education creates opportunities for comprehensive regulation and oversight of educational activities designed for children, diversification of teaching staff categories, online collaboration with parents, implementation of platforms in preschool education, and organization of educational processes based on competency-based approaches.

To address these urgent tasks, including the development of physical abilities in preschool children, improving the methodology for general classification and cultivation of physical qualities, we have developed the “Green playground” technology to enhance motor activity in preschool children for use in physical education classes.

Table 1. Session 1: For All Groups

Goal: Developing children's physical activity, teaching them to walk in a straight line, to run, to perform general developmental exercises, and to develop children's attentiveness and independent movement using the "green playground" technology.

Required equipment: whistle, "green playground"

Expected results:

- Waiting for teacher's signal
- Walking in sequence and individual running
- Number recognition

Training part	Lesson content	Training time
Introduction part	Teacher: Children, today we will travel on the snake path! Walk behind me in a line, lifting your legs high. Children walk lightly to the sound of music.	5-7 minutes
Main part: General developmental exercises	1. Starting position: basic standing, feet shoulder-width apart, arms at sides -4: Rotate arms forward: 2-return to starting position: 5-8: Rotate arms backward: Return to starting position (3-4 times) 2. Starting position: basic standing, feet shoulder-width apart, arms at sides: 1: Right leg extended to the side up to the waist, arms extended upward: 2: Return to starting position 3: Left leg extended to the side up to the waist, arms extended to the sides. 4: Return to starting position (6-8 times). 3. Starting position: basic standing, feet shoulder-width apart, hands on hips 1 - Lower the right foot with toes extended down, knee bent, raised to the waist, turn to the right side and lower to the ground. 2 - Return to starting position. 3 - Repeat the same movement with the left leg 4 - Return to starting position 4. Starting position: basic standing, feet shoulder-width apart, hands behind the head 1 - Raise hands up and perform a half-squat. 2 - Return to starting position 3 - Hands on the sides, perform a full squat. 4 - Return to starting position (6-8 times) 5. Starting position: basic standing, feet shoulder-width apart, arms down at the sides. 1 - Extend arms to the sides, stretch right leg back, stand in a swallow position on the left leg. 2 - Return to starting position 3 - Extend arms to the sides, stretch left leg back, stand in a swallow position on the right leg 4 - Return to starting position (3-4 times) 6. Starting position: basic standing, feet shoulder-width apart, hands behind the head 1 - Perform a full squat. 2 - Return to starting position (6-8 times)	15-20 minutes

Main activity: Step on each of the snake-shaped numbers on the "green playground" and quickly run back.

Game name	Game objective	Game process
Action game "Train"	To teach children to concentrate and activate their movements.	The children stand in a line. When the teacher blows the whistle and says "The train is moving," the children put their hands on each other's shoulders and walk along the serpentine path. When the teacher blows the whistle and says "The train has stopped," the children run back to their places in the same order they were standing at the beginning. The game continues according to the children's preferences.

Final Section:	Children stand in a circle and perform breathing exercises (deep inhalation and slow exhalation). The teacher encourages and praises the children.	3-5 minutes

Conclusion

In developing the physical activity of preschool children, the "Green Playground" technology serves as an important innovative approach. This technology is aimed at developing children's physical qualities (strength, endurance, agility, speed, flexibility), gross motor skills, and balance abilities, and its effectiveness in physical education classes has been proven. The research results show that activities based on the "Green Playground" technology have led to significant positive changes in increasing children's motor activity and developing coordination and concentration skills.

Activities used in the study, such as the "Train" movement game and "Footprint Race," encouraged children to move independently, maintain balance, and accurately follow the teacher's instructions. The assessment criteria and standards presented in the tables (Tables 3 and 4) allowed for a precise and systematic evaluation of children's actions. The experimental group showed higher results compared to the control group in tests such as standing on one leg, walking along a line, and moving with an obstacle (Table 5). For example, in the experimental group, the difference in standing on one leg was 1.0 points, and in maintaining balance - 0.8 points, which confirms the effectiveness of the technology.

The “Green Playground” technology serves not only physical development but also addresses pressing socio-pedagogical issues such as adherence to a healthy lifestyle, prevention of physical inactivity, and adaptation to online educational resources in the context of the pandemic.

This approach aligns with the "Ilk Qadam" (First Step) program and state requirements in the preschool education system, while

Table 2. **Lesson 2: For the early age group**

Goal: To increase children's physical activity. To develop coordination through adapting to footprints.			
Required equipment: whistle, “green playground” Expected results: ● Moving by placing feet on footprints ● Maintaining balance ● Following the teacher's instructions			
Lesson part:	Lesson content		Lesson duration
Introduction: Part:	Teacher: Children, today we will go on a journey following footprints. Jump behind me in a line.		5-7 minutes
Main part: General physical fitness	1. “Adapting to Footprints” exercise, starting position: body upright, feet shoulder-width apart, arms relaxed, jumping along footprints 2. “Walking on the Balance Path” exercise, starting position: hands on hips, feet together, walk along the main black path 3. “Running along the Numbered Snake” exercise, starting position: body upright, arms relaxed, feet together, run along numbers 1-23 while saying the numbers 4. “Crawling in a Figure Eight” exercise, starting position: body upright, feet together, hands on hips, crawl along the arrow-marked figure-eight path		15 minutes
Main type of movement: Children jump in sequence, adapting to the footprints, then walk along the balance path.			
Game name	Game goal	Game progress	
“Footprint Race”	Coordination and attention enhancement.	Children jump following footprints. The teacher keeps time. The child who completes the course in the shortest time wins. 1st, 2nd, and 3rd place winners are determined.	
Final Part:	Breathing exercises (inhale while raising arms, exhale while lowering arms 3-4 times, and return to the starting position).		3-5 minutes

Table 3. **Assessment criteria**

Score	Description
5 points	Can perform movements fully, accurately, quickly, and confidently, maintaining balance and coordination.
4 points	Can perform the movement correctly independently, but sometimes performs slowly or with minor errors.
3 points	Can perform the action, but there is some uncertainty in the movement at times
2 points	Cannot perform actions independently, requires assistance, or performs incorrectly
1 point	Cannot perform at all or does not understand the task

Table 4. **Balance maintenance exercise standards**

No.	Standing on one leg	On tiptoe Deviations from the line	Crossing the line with a foot cover	Score
1	15 seconds	0-1 deviation	15 seconds	5
2	12-14 seconds	2-3 deviations	16-17 seconds	4
3	9-11 seconds	4 deviations	18 seconds	3
4	7-8 seconds	5 deviations	19 seconds	2
5	6 seconds	4 or more deviations	20 or more seconds	1

Table 5. **Results of expert assessment of balance levels in preschool children before and after**

N	Test	Control group		Difference	Experimental group		Difference
		BE	AE		BE	AE	
1.	Standing on one leg	3.0	3.3	0.3	3.1	4.1	1.0
2.	Deviations when walking on tiptoes along a line	3.2	3.8	0.6	3.2	4.0	0.8
3.	Walking along a line with a shoe	3.8	4.3	0.5	3.7	4.5	0.8
4.	x	3.3	3.8	0.46	3.3	4.2	0.86

also allowing integration into global educational trends.A lesson plan was developed for our innovative technology to enhance motor activity, physical qualities, gross motor skills, and balance in preschool children. Each lesson was applied in children's physical education classes. Tables 3 and 4 present assessment criteria and standards in point form.

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