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Characteristics of Physical Activity in Early Childhood Through the Application of Pedagogical Strategies in Outdoor Environments

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Abstract

This study aims to investigate the development of outdoor physical activity (PA) and the pedagogical strategies for children aged 1.5 to 3 years. The study used purposive sampling, deliberately selecting a group of six informants, pre-school teachers working with children aged 1.5 to 3 years, through focus group design. The sample for qualitative study was flexible and based on the principle of data saturation, interviews were carried out until new information became available. Key issues identified included following questions: do children aged 1.5 to 3 years spend sufficient time outdoors in pre-schools? Are the conditions for children's PA in outdoor environments of pre-schools adequate? In response, pre-school teachers employed various strategies such as (in)formally assessing children's progress and planning new activities constantly strive for the goals of children's comprehensive education. Pedagogical effects for children PA revealed through various activities which are characterized by playful features, various movement places, active games, thematic weeks. An analysis of the impact of outdoor environments on the PA of children aged 1.5 to 3 years the findings revealed a direct influence on the expression of PA. The outdoor environment encourages a variety of movements, enhances motor skill development, fosters healthy PA habits, and provides opportunities for exploration, creative engagement, and social interaction. In requirements for outdoor environments, teachers strive to ensure they are adapted to the needs of young children: safe, stimulating, flexible, dynamic, and spacious enough to support free movement, with a variety of age-appropriate and safe equipment.

Keywords: Physical Activity, Physical Education, Pre-school Teachers, Outdoor Environment, Pedagogical Strategies

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INTRODUCTION

The World Health Organization recommends that children spend at least 60 minutes outdoors every day engaging in moderate-intensity PA in order to support their ongoing physical development (World Health Organization [WHO], 2018). Promoting PA is essential for children's physical development to proceed smoothly. PA as a concept includes any activity that requires energy expenditure through low-intensity exercise, walking, locomotor games, dancing and similar activities (WHO, 2020). However, research shows that the majority of children in Europe do not reach the recommended levels of PA (Messing et al., 2019).

In Lithuania, the relevance of promoting forms of PA is reinforced by the Health Programme 2014-2025, which sets out the objective of developing PA habits and creating optimal conditions for PA for pre-school children, both in educational establishments and in public spaces (Health Programme, 2014). However, nearly half of schools didn't properly monitor children's PA in 2019, and 7% of pre-schools reported children were active less than an hour daily (Health Programme, 2019).

Based on European research, national strategies and the current situation, there is a need to ensure that pre-school staff promote children's PA outdoors, by offering walks, locomotor games, active plays and other activities that encourage movement and provide a safe environment for children. Early childhood education institutions present a unique opportunity for promoting PA during weekdays through structured exercise or active play (Martin et al., 2022), as outdoor PA - especially in early childhood - is essential for children's physical and mental development (Lithuanian Health Programme, 2014; WHO, 2018). Studies have shown that children who regularly participate in outdoor PA have better physical performance, increased strength, age and growth appropriate bone development, smooth motor development, and a gradual increase in physical attributes such as coordination (Webster et al., 2019) flexibility, speed, etc. At the same time, children develop social skills and cognitive abilities (Bidzan-Bluma & Lipowska, 2018; Hinkley et al., 2018; Makutienė et al., 2022). Many studies have shown that outdoor PA, especially active play and locomotor games, are fun, adaptable to different environments and an effective way to keep children active (Deng et al., 2024). Unfortunately the recent increase in the use of digital devices has led to an increase in sedentary lifestyles among children, severely affecting their physical and mental health (Jago et al., 2018). The period devoted to PA outdoors has likewise shortened.

The issue of children's PA and its promotion is widely studied in the works of foreign and Lithuanian scientists. Cheung (2020) investigated the impact of teacher on children's PA. Messing et al. (2019) found that children's PA can be encouraged primarily by parents, but also by increased inclusion of PA in the curriculum, active games in the home environment, changes

in the institutional environment, and community and peer involvement. Jago et al. (2018) surveyed parents of British children and found that child sedentariness increases with age. Deng et al. (2024) summarised data from 45 scientific publications on the determinants of children's PA outdoors, which included: child's gender, parental education, work status, income, attitudes, children's health, use of electronic devices, keeping animals, social environment and physical environment.

Lithuanian researchers have explored ways of improving the educational environment to promote children's PA (Rutkauskaitė et al., 2021). However, most of the research conducted in Lithuania has focused on the links between children's PA, their health indicators and the environment (Smetanina et al., 2015; Žaltauskė, 2017), the effectiveness of curricula on children's health (Lamanauskas et al., 2021), and the specificities of children's PA (Strukčinskienė et al., 2012). Strazdienė and Burkė (2019) explored how dynamic environments could promote children's PA. Kryževičienė (2018) revealed that teachers pay too little attention to mobile play techniques and promoting children's independence. However, there is a lack of wider research on promoting PA in outdoor environments for children aged 1.5 to 3 years.

This study aims to investigate the development of outdoor physical activity (PA) and pedagogical strategies for children aged 1.5 to 3 years.

The following research questions are raised:

1. Do children aged 1.5 to 3 years in early childhood education institutions spend sufficient time in outdoor environments?
2. Are the outdoor environments in early childhood education institutions adequately equipped to support the development of children’s physical activity?

Research objectives:

1. To reveal the importance of outdoor physical activity for the development and health of children aged 1.5 to 3 years.
2. To analyse the role of the outdoor environment in promoting and developing physical activity in children aged 1.5 to 3 years.
3. To explore teachers' experiences and strategies for promoting physical activity in the outdoor environment of pre-schools for children aged 1.5 to 3 years.

METHODS

The study employed a qualitative research design, utilizing semi-structured interviews with early childhood teachers working with children aged 1.5–3 years. This approach enabled an in-depth exploration of participants' experiences and perspectives regarding children's PA in outdoor environments and the instructional strategies used to promote it.

Participants were recruited through purposive sampling, with the primary inclusion criterion being practical experience in working with 1.5–3-year-old children within early childhood education settings. All six teachers held a tertiary pedagogical qualification and possessed at least three years of professional experience with young children. The sample size was determined according to the principle of data saturation, with interviews conducted until no new themes emerged. Individual interviews were conducted using a pre-designed interview guide composed of open-ended questions. The goal of data collection was to gather diverse teacher perspectives on children's outdoor PA and how they support it. With participants' consent, all sessions were audio-recorded and subsequently transcribed verbatim.

The final sample comprised six teachers: four pre-school teachers, one senior-level teacher, and one teacher-methodologist. Their pedagogical tenure ranged from 3 to 35 years, providing a rich empirical foundation to identify diverse practices, methodological approaches, and pedagogical experiences.

Research methods: literature analysis, qualitative research (semi-structured teacher interviews), descriptive and content analysis.

FINDINGS

Based on the data collected during the qualitative study, three main thematic categories emerged:

1. Expressions of children's PA in outdoor environments;
2. Outdoor environments in pre-school institutions and their adaptation for promoting PA among children aged 1.5 to 3 years;
3. Pedagogical interventions for fostering development in children aged 1.5 to 3 years in outdoor settings.

The study also analyzed participants' sociodemographic characteristics, including their educational background, length of professional experience, and institutional roles. This analysis is essential for contextualizing the findings, as pedagogical practices and decisions related to children's PA in outdoor environments may be shaped by the teacher's professional experiences and obtained institutional categories. Highlighting these sociodemographic attributes contributes to a more nuanced understanding of the data by:

- Revealing potential correlations between professional experience and the application of pedagogical interventions outdoors.
- Offering insight into whether higher levels of education correspond to greater emphasis on adapted outdoor environments for toddlers.
- Identifying role-related dynamics that may influence teachers' engagement and priorities in facilitating outdoor physical activity.

These data strengthens the interpretive validity of the study and help to plan future targeted professional development initiatives within early childhood education settings.

The socio-demographic data of the participants reveal the professional context in which pedagogical attitudes and practices related to children's PA in outdoor environments are formed. The data show that four teachers hold college degrees in early childhood education, while two have university degrees in education: one is a teacher-methodologist and the other a senior teacher. These official qualifications are encouraged to be obtained by eligible teachers working in pre-school and general education institutions in Lithuania.

Most participants have been employed at the same institution for a period corresponding to their teaching experience, ranging from 7 to 11 years. This consistency indicates a high level of professional loyalty, institutional stability, and a strong sense of responsibility in fostering the school's unique identity to ensure the quality of education. The pedagogical perspective is closely linked to teachers' professional competencies, their educational background and current roles provide indicators of both theoretical preparedness and practical ability to apply appropriate pedagogical strategies in outdoor learning environments. A higher qualification

category reflects accumulated methodological experience and signifies shared leadership within the educational process.

The diversity in teachers' seniority offer valuable insight into how professional experience impacts educational quality. Differing lengths of teaching practice enable comparative analysis of how experience aspect influences attitudes toward fostering PA. For example, a teacher with many years of experience draws on her/his practice and prioritises the development of PA from an early age in line with the institution's priority areas. In contrast, less experienced teachers tend to draw upon recent theoretical knowledge gained during their studies and actively pursue professional development through seminars and conferences, aiming to expand their practical skills and serve as motivated role models for their pupils.

Teachers' long-term continuity within the same educational institution and the acceptance of the institutional culture reflect their ability to flexibly adapt to the institution's values and educational philosophy. Such professional stability has a positive impact on the quality of activities designed to promote PA in the outdoor environment. Moreover, the involvement of teachers in the Health Enhancing Schools Network (SSMT), which covers 42.45% of the country's pre-school and general education establishments between 2024 and 2025, demonstrates their proactive approach and their contribution to strengthening the physical dimension of pre-school education. The mission of this network is to strengthen the physical health of the school community, to promote healthy lifestyles and to create an integrated and health-friendly environment by mobilising cooperation between teachers and society. This activity ensures that teachers can add significant value to their professional experience and ensure the qualitative development of physical education from an early age.

The study results show a correlation between teachers' sociodemographic factors, such as professional experience, educational attainment, and qualification position held, their educational attitudes and practical actions. Teachers' activities reflect not only a commitment to ensure high-quality education, but also a deliberate representation of the institution's pedagogical values. This analysis enables the identification of both professional and personal factors that influence the application of teaching strategies, implementation of PA initiatives, and the overall effectiveness and direction of the children's learning process.

Focus on outdoor adaptations and education was more often emphasised by teachers with higher education (university degree and methodological positions):

- the use of the outdoor environment for the implementation of activities and the targeting of spaces for the early years;

- the integration of PA into the curriculum shows that theoretical knowledge and professional competences lead to a greater focus on the targeted use of outdoor activities.

Perceptions of the importance of pedagogical impact measures among teachers with more seniority:

Teachers with more than 10 years of teaching experience:

- reflect more fluently on the use of practical pedagogical strategies;
- recognises the importance of differentiating activities according to children's developmental characteristics;
- provide concrete examples of how their experience helps them to respond more effectively to children's PA needs

The correlations that emerged between the thematic category "Children's PA in outdoor environment" and socio-demographic data indicate that teachers with more years of experience have a deeper understanding of the context of PA and are more fluent in reflection. For example, P-1 and P-3 teachers with longer teaching experience not only identify the benefits of PA (immunity, coordination, emotional well-being), but also analyse the situations in which activity is highest: when children are given freedom, when activities are informally integrated into play. It is also important to mention the findings of a natural experimental study indicated that an upgrade in outdoor portable play equipment had a significantly positive impact on PA levels of pre-schoolers aged 2-5 years (Martin et al., 2022). This shows that longer professional experience is associated with a deeper understanding of children's physical activity and teachers' initiatives to use outdoor portable play equipment to ensure more attractive activities and the pursuit of outdoor quality education. These insights highlight the interplay between pedagogical experience and the ability to create meaningful, engaging environments that foster physical activity. By recognizing when and how children are most active, experienced educators are better equipped to implement strategies - such as enhancing outdoor play spaces - that directly support children's holistic development and well-being.

Teachers with higher educational attainment place greater emphasis on the adaptability of outdoor environments and the significance of the teacher's role. For example, P-2 (with the methodologist category) emphasises the importance of safety and the quality of the environment, analyses the play elements (climbing frames, obstacles) as a means of developing children's motor skills, and highlights the importance of teachers demonstrating exercises and encouraging children to try activities. This shows a correlation between higher education and insight into the adaptability aspects of the existing outdoor environment: use of the terrain,

adaptation of facilities, use of equipment, knowledge of vegetation and conservation, variety of modelling of teacher-organised outdoor activities.

Teachers with less teaching experience emphasise spontaneity, free play and the importance of children's initiatives in movement. P-5 and P-6 place more emphasis on the following barriers to PA: insufficient resources, lack of attention to individual needs. This may stem from low self-confidence, fear of failure, and limited practical experience, leading to hesitation in trying new activities or involving the entire group of children.

To summarise the results of the study, experienced teachers tend to be more reflective, creative, and adventurous, relying on proven methods and a deep understanding of children's emotional and environmental needs. Teachers with higher education take a structured, analytical approach, aiming to maximize the potential of outdoor educational enviroenment. Less experienced teachers often highlight practical and external challenges, showing a developing professional identity and a preference for safer activities. These differences in competence levels help shape targeted professional development, where insights from experienced teachers can guide and support less experienced teachers.

All teachers highlight that the outdoor environment for children aged 1.5–3 should be multifunctional: supporting movement, healthy habits, exploration, creativity, and social interaction. Additionally, it should be safe, engaging, versatile, spacious and well-structured, ensuring children have room to move freely without overcrowding. When setting requirements for the outdoor environment, they aim for it to be versatile and adapted to the needs of children aged between 1.5 and 3 years old, with a variety of safe equipment (low ladders, tunnels, moving paths, different surfaces to explore), natural materials (logs, sand slides, wooden structures) and natural objects (trees, stones, plants). Pre-school outdoor environments often fall short, particularly for the youngest children, due to limited safe facilities and a lack of natural materials for exploration. To address this, teachers tap into varied funding, creative problem-solving, and parental support to enhance and adapt these spaces, recognizing the shared benefits for children, families, and the broader community.

Teachers also identified several strategies for promoting PA in outdoor environment, including the modeling of play environments (e.g., trails, obstacles, small hills), the organization of active games, encouraging movement through emotional reinforcement, setting a personal example, facilitating natural engagement in activities, and granting children the freedom to explore their surroundings. This suggests that teachers identify the following key aspects:

The educational value of the outdoor environment, emphasising that it is not only a place for PA, but also a space for social, emotional and cognitive development (‘for discovery, for communication’, P-5). The outdoor environment functions as a stimulus for exploration and

creativity, fostering children's natural motivation to move (P-6, P-3). PA is integrated into children's natural movement, because "The outdoor environment 'should invite movement' (P-4), and activity arises spontaneously when children freely choose activities (P-1, P-5)". "Age-appropriate ways of moving are emphasised, such as crawling, climbing, balance training (P-3, P-4)."

A systematic review conducted by Tonge et al. (2016) examining objectively measured correlations between PA and sedentary behavior among children in early childhood education institutions indicates that the presence and size of outdoor spaces and playgrounds within pre-school institutions are among the most influential environmental factors associated with children's levels of physical activity (Martin et al., 2022).

In order to achieve a balance between safety and creativity, teachers believe that "the environment should be "fun, safe and diverse" (P-1), "flexible and uncluttered" (P-5)." "Sensory paths, natural elements, multifunctional tools allow for personalised movement according to needs. Children's initiatives are also encouraged. Teachers appreciate it when children create their own games, move objects around - in this way movement becomes meaningful and a form of self-expression (P-5)."

In summary, both themes-physical activity expression and outdoor environment adaptation-align in recognizing that movement should arise naturally, not through structured tasks, but from an environment that actively inspires and supports spontaneous activity.

Sociodemographic factors, such as experience and education, significantly shape teachers' attitudes toward PA and environment adaptation. Across both areas, there's a shared understanding that children's autonomy in choosing how and where to move is key to fostering genuine physical engagement and meaningful participation in education.

Pedagogical interventions for the education of children aged 1.5-3 years in an outdoor environment. The study shows that the pedagogical impact of PA in the outdoor environment is manifested through a variety of dynamic, playful activities, adapted to children's developmental characteristics. The main aim of teachers is to develop not only movement skills but also social, emotional and creative competences.

Strategies for organising activity. Teachers use a variety of methods, from relay races and obstacle courses to themed weeks, where children become "cats" or "ants" with a playful storyline. This form of play develops balance, coordination and social communication skills (P-1, P-3, P-6).

Targeted educational content. The activities are short, dynamic and match the children's abilities and attention spans. Teachers reflect on children's progress, plan activities according

to observed developmental trends, and integrate formal and informal assessment methods (P-2, P-5).

The value of professional development for teachers. Effective pedagogical impact is supported by continuous teacher learning: participation in professional development courses, analysis of scientific literature, collaboration with colleagues. This shows a high level of professional reflection and a desire to improve the quality of education (P-6).

DISCUSSION AND CONCLUSION

The results of the study confirmed that outdoor PA for children aged 1.5-3 years is an integral part of their natural development. Children's PA at this age is highly spontaneous, playful and closely linked to environmental exploration. The results are in line with the scientific literature, which suggests that PA at an early age is mostly manifested through free movement, the joy of discovery and playful activities in nature. In the experience of the participants and teachers, the outdoor environment is the most suitable space to promote PA for children in this age group, as it allows them to move freely, explore, and interpret objects and the natural world through individual experience. The developmental advantages of active outdoor play in early childhood surpass the direct outcomes related to PA, as such environments provide rich opportunities for gross motor skill enhancement through peer-based exploratory play and meaningful social engagement (Taylor et al., 2024). Teachers are active facilitators of children's movement and creativity, guided by their sensitivity, environmental adaptation, and appropriate support (WHO, 2020). This approach aligns with the Reggio Emilia (Inan et al., 2010) philosophy, which emphasizes the child–environment interaction as essential for meaningful learning and self-expression in early education.

Discussions on the strategies used by teachers revealed, that teachers typically focus on supporting freedom of movement and adapting the environment, using structured PA more sparingly. These approaches reflect a holistic effort to foster physical, social, emotional, and cognitive growth. Through such activities, children experience joy, explore the value of movement, and build self-confidence in their interactions and self-expression.

However, a number of challenges have emerged: the effects of seasonality, adverse weather conditions, inadequate clothing for children, the scepticism of some parents towards outdoor activities, and limited material resources. These factors may limit children's opportunities to experience a wide range of PA in the natural environment. Strong parent–teacher cooperation is seen as essential for effective outdoor education. When that partnership is robust, it can help overcome systemic and financial obstacles, enhancing the learning experience. This view is echoed by early childhood education experts (Žaltauskė, 2017, Cheung, 2020), who

consistently emphasize the role of active family involvement in supporting children's development.

It is also important to note that children's PA is closely linked to the development of their motor skills. For a child of this age, every run, jump or carrying an object is not only a physical movement, but also a way of expressing cognition, coordination and emotions. Teachers who are sensitive to children's needs help develop both gross and fine motor skills through naturally occurring activities. Such practices are particularly important in early childhood, as this is the period when key skills are formed that influence later developmental success.

In conclusion, the study underscores that children's PA is essential not only for their physical development, but also for their holistic growth, including emotional, social, and cognitive well-being. The outdoor environment-dynamic, open, and ever-evolving-offers children space for free expression and growth. Teachers shape these experiences through professional, creative, and values-driven approaches. Equally vital are parental engagement, collaborative efforts, and institutional commitment to building safe, inclusive, and resource-rich spaces for all children.

Recommendations

For heads of educational institutions and administrative staff

- In order to ensure optimal PA duration for children aged 1.5 to 3 years, every educational institution must provide conditions that enable children to engage daily in at least 180 minutes of PA involving movements of varying intensity.
- In accordance with national norms of hygiene, educational environments for children must ensure safety, including the secure design and maintenance of outdoor equipment. Daily outdoor-based learning activities are recommended and may be structured into morning and afternoon sessions to maximize children's exposure to natural environments and promote continuous physical movement.

For early childhood, pre-school teachers:

- Outdoor learning environments for children in early childhood education institutions should be designed in accordance with a pedagogical framework that integrates principles of safety, visual and spatial aesthetics, functional adaptability, and developmental appropriateness. These environments must adhere to ergonomic standards and be tailored to meet the specific physical and psychosocial requirements of the targeted age group. To foster holistic development, it is essential that play structures serve multiple functions, supporting a wide range of motor activities, stimulating sensory engagement, facilitating peer interaction, and nurturing imaginative and creative expression.

- Children aged 1.5 to 3 years outdoor environments should incorporate low-level climbing structures, tunnels, balance paths, and a variety of exploratory surfaces, combined with natural materials (e.g., logs, sand mounds, wooden installations) and living elements (such as trees, stones, and vegetation), in order to enrich their sensory and motor experiences.
- It is essential to integrate topics related to the benefits of natural movement in children into teachers' professional development programs, in order to enhance teachers' understanding of the role outdoor PA plays in children's physical, emotional, and cognitive development. Such knowledge enables the creation of outdoor learning environments that promote active exploration, autonomy, and healthy growth, while simultaneously strengthening teachers' capacity to use movement as an effective pedagogical tool in everyday practice.

For parents and the community:

- Strategically utilize available financial resources, submit applications for additional funding through municipal project calls, and creatively engage parental support and community contributions in order to enhance the quality of the institution's outdoor environment and foster collaborative efforts in its maintenance and renewal.

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Statement of Contribution of Researchers:

1.Author: %65

2.Author: %35

Information about the Ethics Committee Permission: Responsibility for any violations that may arise in the work done belongs to the author. Ethics committee approval of the article was obtained with the decision of Vilniaus kolegija | Higher education institution, the Faculty of Pedagogy Ethics Committee No.2 dated 09.05.2025. All participants were informed of the study's purpose, the voluntary nature of their participation, and their right to withdraw at any time without penalty. Informed consent was obtained from all participants prior to the study's commencement.

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