Indonesian Journal of Early Childhood Education Studies (IJECES)
Volume 15, Number 1, June 2026, Pages 49-62
e-ISSN: 2476-9584 (Online), p-ISSN: 2252-8415 (Print)

Outdoor Play Facilities and Their Potential to Support Gross Motor Development in Early Childhood

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DOI: https://doi.org/10.15294/ijeces.v15i1.39131
Submitted: 17/12/2025 **Revised:** 30/04/2026 **Accepted:** 28/06/2026

ABSTRACT
Gross motor development is an important aspect of early childhood development that requires stimulation through various play activities. The availability of outdoor play facilities can provide children with opportunities to engage in a variety of movements appropriate to their developmental stages. This study aims to examine the potential role of outdoor play facilities in stimulating the gross motor development of young children, using the facilities available at TK Wijaya Kusumah as a contextual reference. This study employs a library research method with content analysis. The sources reviewed include relevant national and international journal articles and reference books. Unstructured observations and documentation of the outdoor play facilities at TK Wijaya Kusumah were used to provide contextual information about the facilities discussed. The findings indicate that various types of equipment, including tire stepping paths, swings, slides, spinning bowls, wobbly bridges, monkey bars, seesaws, and balance beams, offer different types of movement activities and have the potential to stimulate muscle strength, balance, movement coordination, agility, and postural control. The use of these facilities should consider children's developmental stages, equipment safety, and teacher supervision. This review provides an overview of the potential of various outdoor play facilities to stimulate gross motor development and may serve as a reference for teachers and early childhood education providers in designing play environments. Since this study is based on a literature review and does not directly assess children's motor abilities, the findings cannot establish a causal relationship between the completeness of outdoor play facilities and children's gross motor development.

Keywords: Outdoor Play; Play Facilities; Gross Motor Development; Early Childhood; Library Research

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1. INTRODUCTION

Early childhood is an important period of growth and development, including the development of gross motor skills. Gross motor development involves the coordination of large muscle groups to perform movements such as walking, running, jumping, climbing, and maintaining balance. These skills enable children to explore their surroundings, participate in physical activities, and develop greater independence. Motor development is influenced by the interaction between children's individual characteristics, movement experiences, and environmental opportunities (Gallahue & Ozmun, 2012; Clark & Metcalfe, 2002). Therefore, early childhood education institutions need to provide environments that encourage children to engage in varied, meaningful, and developmentally appropriate physical activities.

Outdoor play is an important context for providing such opportunities. Through outdoor activities, children can move freely, explore their physical capabilities, and interact with different types of play equipment. Facilities such as swings, slides, climbing structures, stepping paths, and balance beams offer opportunities for movements that involve balance, coordination, muscle strength, and postural control. Nevertheless, the availability of outdoor play facilities should not be considered solely in terms of the number of pieces of equipment. The types of movements encouraged by each facility, children's opportunities to use the equipment, and the safety and suitability of the play environment are also important considerations. Consequently, examining outdoor play facilities requires attention to the movement experiences they offer and their potential relevance to children's gross motor development.

Previous studies have explored the relationship between outdoor play environments and children's development from different perspectives. Jeon and Jun (2021) developed outdoor playground design criteria based on fundamental movement skills and perceptual-motor skills, emphasizing the importance of considering children's movement needs in playground design. Meanwhile, Pereira et al. (2024) reviewed research on associations between outdoor play features and children's behavior and health. Their review highlighted the diversity of environmental features examined and the challenges of drawing firm conclusions about the relationships between particular features and child outcomes. These studies provide a foundation for understanding the relevance of outdoor play environments, while also indicating the need to interpret the potential contributions of individual facilities carefully. The presence of a particular facility alone does not establish that children's gross motor abilities have improved.

In the context of early childhood education, a more specific consideration concerns the movement opportunities offered by different types of outdoor play facilities and their potential relevance to particular components of gross motor development. Discussing these opportunities can help teachers and early childhood education providers make more informed decisions when arranging outdoor play activities and selecting appropriate equipment. This consideration is relevant to TK Wijaya Kusumah, where several types of outdoor play facilities are available, including a tire stepping path, swing, slide, spinning bowl, wobbly bridge, monkey bars, seesaw, and balance beam. Each facility provides different opportunities for movement and physical engagement. Examining these facilities in relation to relevant literature can therefore provide a contextual overview of the types of gross motor activities they may support.

Although previous research has addressed outdoor play environments and playground design, the present study focuses on discussing the potential movement opportunities associated with each of the eight outdoor play facilities documented at TK Wijaya Kusumah. Rather than measuring children's motor performance or testing the effectiveness of particular equipment, this study connects findings from relevant literature with contextual documentation of the facilities. This approach allows the discussion to focus on the potential relevance of different facilities to gross motor components, including balance, coordination, muscle strength, agility, and postural control, while

acknowledging that children's actual developmental outcomes may also depend on their developmental stages, patterns of use, supervision, and the broader play environment.

Based on this background, this study aims to examine the potential role of outdoor play facilities in supporting the gross motor development of young children, using the facilities available at TK Wijaya Kusumah as a contextual reference. Specifically, the study identifies the movement opportunities associated with each facility and discusses their potential relevance to different components of gross motor development. Through this literature-based analysis, the study is expected to provide a reference for early childhood educators and education providers when considering the use and arrangement of outdoor play facilities. As the study does not directly assess children's motor abilities or test causal relationships, its findings are intended as a descriptive and conceptual contribution rather than evidence that facility completeness directly improves children's gross motor development.

2. METHOD

Research Design

This study employed a library research approach to examine the potential role of outdoor play facilities in supporting gross motor development in early childhood. This approach was used to review relevant theories, concepts, and findings from previous studies concerning outdoor play facilities and children's gross motor development. The analysis focused on synthesizing existing scholarly literature to understand the potential contribution of outdoor play facilities to different components of gross motor development, rather than testing a causal relationship between facility completeness and children's motor development.

Preliminary unstructured observations and photographic documentation of outdoor play facilities at TK Wijaya Kusumah were used to provide contextual illustrations of the facilities discussed in this study. The documentation was intended to describe the types and characteristics of the available equipment and connect the literature review with the context of the educational setting. It was not treated as the primary source of research data and was not used to measure children's motor abilities or assess developmental outcomes. Accordingly, the main analysis relied on scholarly literature, while the photographs served as supporting contextual information.

Sources and Selection of Literature

The literature reviewed consisted of national and international journal articles, academic books, and other scholarly publications relevant to outdoor play facilities and gross motor development in early childhood. The selection criteria were: (1) relevance to outdoor play, educational play facilities, or playground equipment; (2) relevance to gross motor development in early childhood; (3) publication within the preceding ten years, while retaining foundational works considered important to the field; and (4) academic credibility, including publications in reputable scholarly journals and books from credible publishers.

Literature searches were conducted using Google Scholar, Garuda, and relevant national and international academic journal sources. The search focused on keywords related to outdoor play, gross motor development, early childhood development, and outdoor playground equipment. The literature selection process involved identifying potentially relevant publications through keyword searches, screening titles and abstracts, examining the full texts for relevance to the research focus, and extracting information pertinent to the analysis.

The selected literature was then reviewed to identify concepts and findings relevant to the study objectives.

Data Analysis

The data were analyzed using content analysis, which involves examining documents to identify relevant themes and patterns of meaning (Krippendorff, 2013). The analysis focused on the characteristics of outdoor play facilities, the movement opportunities they offer, and their potential relevance to children's gross motor development.

The analysis was conducted in four stages. First, the selected literature was read carefully to understand its content and relevance to the research objectives. Second, relevant information was identified and recorded, particularly information concerning types of outdoor play facilities, the movements associated with their use, and their potential relevance to gross motor development. Third, the extracted information was organized into thematic categories, including types of play facilities, gross motor components, and the role of teachers in facilitating outdoor play. Fourth, the findings were compared and synthesized to develop a descriptive discussion of the potential contribution of outdoor play facilities to gross motor development.

The literature-based analysis was connected with contextual documentation of eight outdoor play facilities available at TK Wijaya Kusumah: a tire stepping path, swing, slide, spinning bowl, wobbly bridge, monkey bars, seesaw, and balance beam. These facilities were discussed in relation to gross motor components, including balance, coordination, muscle strength, agility, and postural control. The findings were presented descriptively by integrating relevant theoretical perspectives and previous research with the contextual information about the available facilities. Because the study did not directly assess children's motor abilities or employ statistical testing, the analysis was intended to describe potential developmental contributions rather than establish a causal effect of outdoor play facility completeness on children's gross motor development.

Research Limitations

This study has several limitations. First, the findings were derived from a review and synthesis of existing literature and were not verified through direct measurements of children's gross motor development. Second, the observations and photographic documentation at TK Wijaya Kusumah served only as contextual illustrations of the available outdoor play facilities. They did not include structured assessments of children's play behavior or motor skills. Third, the scope of the review was limited to relevant literature identified and accessible through the search process; therefore, some potentially relevant publications may not have been included.

In light of these limitations, the findings should be interpreted as a descriptive and conceptual discussion of the potential role of outdoor play facilities rather than as definitive evidence of their effects on children's gross motor development. Future research could use structured observational, correlational, or experimental designs to examine children's interactions with outdoor play facilities and investigate their relationship with gross motor development using appropriate assessment procedures.

3. RESULTS AND DISCUSSION

Results

Outdoor Play Environment and Facility Completeness

The availability and diversity of outdoor play facilities at TK Wijaya Kusumah provide opportunities to create a learning environment that supports gross motor development in early childhood. A greater variety of play equipment may offer children opportunities to engage in different physical activities and explore a wider range of movements. The diversity of play activities accessible to children may contribute to their physical activity experiences and broader developmental needs (Obeng, 2009). Compared with indoor environments, outdoor areas generally provide more space for movement, allowing children to participate in physical activities that may be difficult to accommodate within the classroom. This is consistent with research highlighting the opportunities outdoor environments provide for physical activity and diverse movement experiences across different developmental domains (Koepp et al., 2022; Bogerd et al., 2023).

Open outdoor environments can also encourage physical exploration and provide varied sensorimotor experiences. The availability of different types of play equipment may allow children to explore a broader range of movements and encounter different physical challenges. Conversely, a limited variety of facilities may reduce the range of movement opportunities available to children. Houser et al. (2019) discussed the potential of outdoor environments to encourage movement activities such as running, jumping, and active play, which are relevant to the development of fundamental motor skills and physical literacy. However, the availability of facilities alone does not establish that children's motor abilities will improve, as developmental outcomes may also depend on children's engagement in play, the suitability of the equipment, and the support provided by teachers.

The eight types of outdoor play equipment documented at TK Wijaya Kusumah—tire stepping paths, swings, slides, spinning bowls, wobbly bridges, monkey bars, seesaws, and balance beams—offer different movement opportunities and physical challenges. Activities involving these facilities may include jumping, hanging, balancing, climbing, and coordinating movements between body parts. He et al. (2024) discussed the relevance of varied movement experiences to physical abilities such as muscle strength, flexibility, agility, balance, and gross motor coordination. In this context, the facilities can be examined in terms of the types of movements they afford and the gross motor components those movements may engage. Diverse movement experiences may also provide a foundation for the continued development of more complex motor skills. Nevertheless, the potential contributions of each facility should be interpreted in relation to the available literature rather than as evidence of measured improvements among children at TK Wijaya Kusumah.

Gross Motor Skills

Gross motor development is a fundamental aspect of early childhood development, involving the control and coordination of large muscle groups to perform movements such as walking, running, jumping, and throwing. Understanding gross motor development provides a theoretical foundation for discussing the potential contribution of outdoor play activities to children's movement experiences. Gallahue and Ozmun (2012) described early childhood as an important period for the development of fundamental movement skills, during which basic movements are acquired and refined. Similarly, Clark and Metcalfe (2002), through the “Mountain of Motor Development” metaphor, explained motor development as a progressive process shaped by interactions between biological maturation, individual experiences, and environmental opportunities. These perspectives highlight the importance of providing children with varied opportunities to practice and refine fundamental movements.

Gross motor skills involve movements that rely primarily on large muscle groups (Winarno, 1994). During early childhood, children continue to develop basic movements such as walking, running, leaping, jumping, and landing (Rahman et al., 2020). Wulandari et al. (2024) further classified movement skills into three categories: locomotor, non-locomotor, and manipulative movements. Locomotor movements involve moving the body from one place to another, such as

walking, running, and jumping. Non-locomotor movements are performed without changing location and include bending, stretching, pushing, and twisting. Manipulative movements involve controlling or handling objects through actions such as throwing, kicking, bouncing, and dribbling a ball. These categories provide a useful framework for discussing the movement opportunities associated with different outdoor play facilities.

Beyond their role in physical activity, gross motor skills are relevant to children's participation in everyday activities and interactions with their surroundings. Physical activity provides opportunities for children to explore their environment, interact with peers, and develop confidence (Musfirah et al., 2025). Outdoor play can offer varied contexts in which children practice movements involving strength, agility, balance, and coordination. Manurung et al. (2021) also discussed the potential contribution of outdoor play activities to children's development. Taken together, these perspectives provide a basis for examining how outdoor play facilities may offer opportunities to practice different gross motor skills. However, the availability of movement opportunities should not be equated with demonstrated improvements in children's motor abilities.

The Relationship between Outdoor Play Environment and Gross Motor Development

Gross motor development is a fundamental aspect of early childhood development, involving the control and coordination of large muscle groups to perform movements such as walking, running, jumping, and throwing. Understanding gross motor development provides a theoretical foundation for discussing the potential contribution of outdoor play activities to children's movement experiences. Gallahue and Ozmun (2012) described early childhood as an important period for the development of fundamental movement skills, during which basic movements are acquired and refined. Similarly, Clark and Metcalfe (2002), through the “Mountain of Motor Development” metaphor, explained motor development as a progressive process shaped by interactions between biological maturation, individual experiences, and environmental opportunities. These perspectives highlight the importance of providing children with varied opportunities to practice and refine fundamental movements.

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Outdoor Play Equipment at TK Wijaya Kusumah

Each type of outdoor play equipment has a unique way of stimulating children's motor abilities. Some games demand balance, some challenge coordination, and others train courage and

movement control. This diversity makes the play facilities at TK Wijaya Kusumah an important means of enriching children's movement experiences. Therefore, the following discussion elaborates on the contribution of each outdoor play equipment to gross motor development.

1. Tire Stepping Path

Fig. 1. Tire Stepping Path Play Equipment at TK Wijaya Kusumah

The tire stepping path is an outdoor play facility that provides opportunities for children to practice balance and movement coordination. By stepping, walking, or jumping between tires, children can explore different movement patterns while adjusting their body positions and maintaining stability. These activities may also encourage movement planning as children determine where to place their feet and how to move safely between stepping points.

Kurnia et al. (2025) discussed children's balance abilities in relation to activities such as standing on one foot, walking in a straight line, maintaining stability on a beam, and running in a zigzag pattern. These activities provide a relevant basis for understanding the movement demands involved in using a tire stepping path. Similarly, Rusmayadi et al. (2024) highlighted the relevance of activities involving leg movement, body control, and locomotor skills to gross motor development. Rojas et al. (2023) also discussed coordination as an important component of motor performance. In this context, the tire stepping path may provide opportunities for children to practice balance, coordination, and controlled movement. However, the extent to which these activities contribute to children's motor development depends on how the facility is used and cannot be established from the availability of the equipment alone.

2. Swings

Fig. 2. Swing Play Equipment at TK Wijaya Kusumah

Swings are one type of outdoor play equipment that can potentially provide important movement stimulation for children's gross motor development. Ririn and Hijriyani (2020) explained how to play on swings: sitting on the swing seat, then gently moving the swing while holding the available handles to maintain balance and avoid falling. Swings are typically played in pairs, with one child sitting on the swing and another pushing it. The forward-backward motion of the swing requires children to coordinate their core muscles, legs, and arms rhythmically to maintain speed and body balance. This activity also stimulates the vestibular system—the body's balance system that helps children recognize direction and body position—thereby enhancing their ability to maintain stability and control movements. When children move their bodies and maintain a stable sitting position, they are effectively training core muscle strength, bilateral coordination, and the ability to regulate movement rhythm. Additionally, swinging can improve courage, concentration, and self-control, as children must adjust their body movements according to the swing's speed.

In selecting and arranging swing equipment, several guidelines are appropriate for early childhood (Yusuf et al., 2018; Damayanti et al., 2023): (a) swings should not be placed too close to climbing equipment; ideally, they should be installed on flat ground with clear boundaries so children can recognize they are entering the swing area; (b) the swing area requires a minimum of 7 square meters per swing; (c) the swing seat should be made of canvas or soft rubber; (d) use standard "S"-shaped hooks with strong fasteners; (e) for children under 1 year old, the seat should enclose the entire body; for children aged 1-3 years, a backrest and safety belt should be used.

3. Slides

Fig. 3. Slide Play Equipment at TK Wijaya Kusumah

Slides are play equipment that can potentially stimulate gross motor skills through climbing and sliding activities. This equipment is easy to use: children simply climb to the top of the slide using the available ladder, sit on the sliding board, and slide down to the surface (Ririn & Hijriyani, 2020). When climbing the ladder, children practice leg muscle strength, hand-foot coordination, and balance. When sliding down, children practice body positioning and speed control, contributing to the development of coordination and bodily stability.

Several guidelines should be followed when selecting and arranging slide equipment appropriate for child development (Yusuf et al., 2018; Damayanti et al., 2023): (a) the sliding surface should be smooth; (b) the structure should be sturdy and not easily breakable; (c) if made of wood, the surface should be smooth to prevent splinters; (d) slide height should be appropriate for children's age; (e) ladder steps for climbing should preferably be flat rather than round; (f) slides should ideally be made of fiberglass and not iron; (g) placing two slides side by side can increase children's enjoyment.

4. Spinning Bowl

Fig. 4. Spinning Bowl Play Equipment at TK Wijaya Kusumah

The spinning bowl is an outdoor play equipment made of iron, arranged with a handle or steering wheel in the center so children can sit on it and spin. This equipment can be used by several children simultaneously. According to Rosidah et al. (2023), the activity of spinning the equipment and maintaining body balance while the bowl spins can improve children's gross and fine motor coordination. Gross motor skills are stimulated through pushing, pulling, and maintaining posture while the equipment spins, while fine motor skills develop as children grip the handles and control hand strength when adjusting the spinning speed. Afiata et al. (2022) reinforced that the spinning bowl game can train balance and body coordination, including sensory information systems, synergistic postural muscle responses, muscle strength, adaptive systems, and joint movement. The sensory information system relates to visual, vestibular, and somatosensory senses, which are important for developing motor skills in young children.

5. Wobbly Bridge

Fig. 5. Wobbly Bridge Play Equipment at TK Wijaya Kusumah

The wobbly bridge is a play equipment shaped like a small bridge with a flexible or swaying surface that moves when children step on it. This equipment is made of iron or wooden planks as stepping surfaces, equipped with handrails on the sides to help children maintain balance while playing. The wobbly bridge can influence children's motor development because, when children walk on a swaying surface, they must control their bodies, maintain balance, adjust foot positioning, and stabilize muscles. This activity involves coordination of various large muscles, including leg muscles, hips, arms, and core muscles. Ririn and Hijriyani (2020) stated that the wobbly bridge can train children's balance, concentration, and kinesthetic awareness. Balance is

part of gross motor development, while kinesthetic ability relates to how children perceive body position and regulate movements. Therefore, the use of wobbly bridges provides direct stimulation that supports children's motor maturation.

6. Monkey Bars

Fig. 6. Monkey Bar Play Equipment at TK Wijaya Kusumah

Monkey bars are outdoor play equipment consisting of a series of parallel bars or iron poles arranged for children to climb and hang from. Playing on monkey bars requires the use of large muscles, particularly arms, shoulders, back, and core muscles. This activity involves swinging, hanging, and pulling the body to move from one bar to another, demanding significant physical strength and good body coordination. Monkey bars can directly improve children's gross motor skills by training large muscle strength, agility, and body coordination (Nurjani & Jamilah, 2023). Additionally, hanging and swinging can help improve children's posture in the back and spine areas, which benefits physical development.

7. Seesaw

Fig. 7. Seesaw Play Equipment at TK Wijaya Kusumah

The seesaw is a traditional play equipment commonly found in playgrounds and has an important role in children's development, both physically and socially. According to experts, the seesaw is a game played by two or more people, requiring cooperation between players on both sides to move up and down alternately (Qalby & Suprapto, 2021). The seesaw is one type of outdoor play equipment that is highly beneficial for the gross motor development of young children. This game has the potential to train muscle strength, balance, coordination, and children's social aspects comprehensively. Several benefits identified by previous research

include: improving balance through up-and-down movements that require children to stabilize their center of gravity and adjust posture (Farid et al., 2022; Ririn & Hijriyani, 2020); training coordination between body parts by synchronizing the movement of both feet, hands, and core muscles to push and resist movement (Adpriyadi, 2017); improving large muscle strength by pushing the board and supporting body weight, involving leg, hip, and abdominal muscles (Anggraini & Komalasari, 2019; Suryadi et al., 2023); and developing rhythm, timing, and proprioception skills (Farid et al., 2022).

8. Balance Beam

Fig. 8. Balance Beam Play Equipment at TK Wijaya Kusumah

The balance beam or stepping board game typically involves a physical board used to test and train body balance ability. Players are asked to step or move according to game instructions, aiming to improve reaction time, response time, and stepping time (Lax-Vanek & Davies, 2023). Several studies have explained its benefits for the physical motor development of young children, including: improving static and dynamic balance as walking on the board forces children to control their center of gravity and maintain posture while walking or stopping (Nabilah & Widajati, 2024); training gross motor coordination (legs, body, arms); improving large muscle strength; and training specific locomotor function skills as variations in board height and surface can be used to practice different walking patterns and obstacle navigation abilities (Firman et al., 2023).

The Role of Teachers in Facilitating the Use of Outdoor Facilities

The role of teachers in utilizing outdoor play facilities extends beyond supervision to ensuring that children's play experiences are safe, appropriate, and suited to their developmental needs. During early childhood, teachers are responsible for organizing, facilitating, and adapting play activities according to children's abilities and individual needs. They should ensure that outdoor play equipment is maintained in good condition, is safe to use, and meets relevant safety requirements. Adequate supervision is also essential to reduce the risk of injury while children engage in outdoor play.

Teachers also facilitate children's gross motor development by providing varied play activities that accommodate different levels of ability and readiness. This includes designing movement activities, giving clear instructions, and offering appropriate verbal and nonverbal support. Through these practices, teachers can help children explore different movement patterns and use outdoor play facilities in ways that are appropriate to their developmental abilities.

Furthermore, teachers can provide opportunities for children to engage in manageable physical challenges, such as climbing, jumping, and balancing. When these activities are appropriate to children's abilities and supported by adequate supervision, they may encourage children to develop confidence, independence, and persistence when facing challenges. Teachers therefore

need to balance children's freedom to explore with appropriate safety measures, avoiding both unnecessary restrictions on movement and unsupervised exposure to physical risks.

An understanding of children's developmental stages is also important when selecting and facilitating outdoor play activities, particularly for children aged five to six years. According to the Standar Tingkat Pencapaian Perkembangan Anak (STPPA, 2014), children in this age group are expected to demonstrate coordinated body movements involving flexibility, balance, and agility. Teachers can use this developmental guidance when selecting and facilitating activities involving equipment such as balance beams, monkey bars, and swings. Overall, the teacher's role is important in ensuring that available outdoor play facilities are used safely and appropriately to provide varied movement opportunities that may support children's gross motor development.

4. CONCLUSION

Based on the literature review and discussion, outdoor play facilities may provide valuable opportunities to support gross motor development in early childhood. A variety of outdoor play equipment can offer children diverse movement experiences that involve muscle strength, balance, coordination, agility, and postural control. However, the availability of diverse facilities alone does not establish that children's gross motor abilities will improve, as developmental outcomes may also depend on children's engagement in play, the suitability of the equipment, and the guidance provided by teachers.

The eight types of outdoor play facilities documented at TK Wijaya Kusumah—tire stepping paths, swings, slides, spinning bowls, wobbly bridges, monkey bars, seesaws, and balance beams—offer different movement opportunities that may be relevant to various components of gross motor development. These facilities can be discussed in terms of the physical activities and movement demands they provide. Teachers also play an important role in ensuring that outdoor play activities are safe, appropriate to children's developmental stages, and supportive of varied movement experiences.

This study is limited by its library research approach and the use of contextual documentation rather than structured field assessments. Therefore, the findings represent a literature-based discussion of the potential contributions of outdoor play facilities and do not establish a causal relationship between facility completeness and children's gross motor development. Early childhood education institutions may consider the variety, arrangement, safety, and maintenance of outdoor play facilities when planning play environments. Future research should employ empirical designs, such as structured observational, correlational, or experimental studies, to examine children's use of outdoor play facilities and investigate their relationship with gross motor development using appropriate assessment procedures.

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