

ICONSPADU 2021**International Conference on Sustainable Practices, Development and Urbanisation****CHILDREN OUTDOOR PLAY TOWARDS EDUCATIONAL
SUSTAINABILITY: A SCOPING REVIEW**

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Abstract

Outdoor play encompasses a spectrum of activities that take place in the natural environment within an area. However, technology advancement has led to an overwhelming prominence of more sedentary indoor activities, such as television, video, and computer games allowing children to spend more time on digital technology daily. As a result, there has been a reduction of outdoor access for many children, and this has caused social well-being and physical health problems in recent years. The purpose of this scoping review was to determine what is currently known about how outdoor play impact children's well-being. This scoping review was reported according to Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines. A total of 10 studies were eligible for selection. The results showed that outdoor play influenced children's play behaviour and environment engagement played an important role in getting children to be highly active during outdoor play.

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1. Introduction

In line with the introduction of 21st Century learning, Malaysia has made significant improvements in increasing access to formal schooling. The process of learning in today's education is no longer focused on providing information to children, but, as Ratnaningsih (2016) mentioned, it is to prepare children to become active 21st Century critical thinkers. The most prevailing challenge today is particularly in helping children develop higher-order thinking capabilities to raise the quality of education in Malaysia (Ministry of Education Malaysia, 2013). To address this pressing issue, Malaysia's pivotal education planning blueprint (Ministry of Education Malaysia, 2013) explicitly addresses the importance of engaging children in types of learning experiences that cultivate higher-order thinking.

Even though this notion's direction is somewhat effectuated and seems to fall short based on current teaching trends in Malaysia, the data on teachers' classroom practices goes against the grain of stimulating children's thinking (Tee et al., 2018). Despite the official emphasis on developing children's thinking through a highly centralized national curriculum reform effort. Teachers' practices in Malaysian classrooms seem to contradict the needs of the growing knowledge society. As a result, traditional education focuses on children's achievement and typically provides a standardized measure of achievement that is still being used. Hence, children are measured according to their achievement in the current education system through skills mastery (Thompson, 2018).

Having said above, children today are at risk of facing Childhood Psychosocial Dysfunction (CPD), which may restrict their mental and emotional well-being in daily functioning (Soliman et al., 2020). CPD is the most prevalent chronic health condition of childhood and often has negative consequences for a child's academic achievement and social development. These problems can significantly affect a child's future life, causing a greater risk of persisting adulthood (Spijkers et al., 2013). Mental health problems among children in Malaysia chalked 12.1% (Malaysian Mental Health Association, 2019) based on the National Health Morbidity Survey in 2015. Thus, if mental health problems among children go untreated, this may result in long-term problems such as withdrawal, anxiety, and depression (Idris et al., 2019).

Thus, making this study essential to distinguish the importance of an environment outside offers exciting conditions for children to show different aspects of their personality that do not emerge indoors. According to Maynard et al. (2013), outdoor play allows more profound knowledge about children, facilitating an adult's adequate educational intervention. Space's characteristics (open and unpredictable) enable the development of shared goals between children, leading to companionship experiences among peers (Bento & Dias, 2017). During outdoor play, children become teachers and learners, sharing their knowledge and skills to accomplish different tasks or challenges. It is possible to develop empathy in this cooperation process as children understand others' feelings and needs. The crucial difference between socialization in the outdoor environment is that opportunities for interaction happen gradually, which increases children's well-being (Storli & Sandseter, 2019). Thus, giving children the possibility to choose the moments to connect with others or play individually without continually running into each other as it often happens in intimate and exiguous rooms.

Integrating outdoor play into learning will lift children’s interest and motivation to perform at their best. Therefore, it is necessary to establish a scoping review on outdoor play among children to determine the psychosocial well-being status and associated factors among children.

2. Methods

This scoping review was reported according to Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines. The current scoping review conducted was based on Arksey and O’Malley’s (2005) methodological framework: (1) identifying research questions; (2) identifying relevant studies; (3) selecting relevant studies; (4) charting the data; and (5) collating, summarising and reporting the results. Figure 1 shows the stages addressed in the following sub-sections as it applied to this study more specifically.

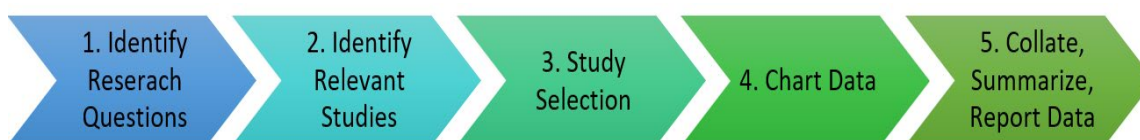


Figure 1. Methodological framework (Arksey & O’Malley, 2005)

2.1. Identifying the Research Questions

The topic of outdoor play for children has not yet been extensively reviewed, partially as it is complex in nature and still emerging. Thus, the research question for this scoping review was, ‘What is empirically known from the existing literature about outdoor play among children?’ that act as the guide to research further in this study. Table 1 shows the underlie research questions formed based on the research objectives based on PCC framework.

Table 1. Research questions were formed based on PCC (Population/Concept/Context)

Research Question	Specific Objective
1. How is the research focused on outdoor play distributed?	1. Explore the temporal and geographical relationship and the setting in which studies on outdoor play have been developed
2. What are the design types of the studies related to outdoor play among children?	2. To identify the main types design used in studies on outdoor play in preschool
3. What are the purposes and topics for which outdoor play are developed?	3. To identify purpose and topics most frequently investigated in the studies about outdoor play in preschool
4. What are the elements been researched into by past research?	4. To identify the elements been researched by past researchers
5. What is the theory behind the design of the outdoor play?	5. To describe the theoretical perspective used to develop the outdoor play
6. What is the effectiveness of outdoor play on children’s well-being?	6. To summarize the effectiveness of children’s well-being

2.2. Identifying Relevant Studies

The search strategy was intentionally broad to maximize coverage of all relevant studies. This involved using search terms related to outdoor play among children. The search strings are shown in Table 2 below.

Table 2. Search string/Keyword

Database	Search string/Keyword
Scopus	TITLE-ABS-KEY ((“outdoor*” OR “free*”) AND (“learn*” OR “activit*” OR “play*” OR “game*”) AND (“child*” OR “kid*” OR “toddler*”) AND (“interact*” OR “engage*”))
Web of Science (WOS)	TS=((“outdoor*” OR “free*”) AND (“learn*” OR “activit*” OR “play*” OR “game*”) AND (“child*” OR “kid*” OR “toddler*”) AND (“interact*” OR “Engage*”))
Education Resources Information Center (ERIC)	Outdoor Learning OR Outdoor Activities OR Outdoor Activity OR Outdoor Play OR Outdoor Games OR Free Learning OR Free Activities OR Free Activity OR Free Play AND Children OR Child OR Kid OR Kids OR Toddlers OR Toddler AND Interaction OR Interact OR Engagement OR Engage

2.3. Study selection

Study inclusion criteria are provided in Table 3. Protocols for scoping reviews are not eligible for publication in PROSPERO but we nevertheless present findings according to PRISMA guidelines (Tricco et al., 2018). Two members from the research team had independently conducted title and abstract screening of all papers, based on predefined inclusion and exclusion criteria.

Table 3. Inclusion and Exclusion Criterion

Inclusion criterion	Exclusion criterion
1. Articles published from 2017-2021	1. Full text not attained
2. English language	2. Not related to outdoor play
3. Focus on outdoor play	3. Not related to children/toddlers
4. Focus on children/toddlers	4. Physical activity per se
5. Focus on interaction/engagement	5. Learning Disability per se

2.4. Charting of data

The research team collectively determined which attributes of the articles to extract for summary and analysis after piloting the Microsoft Excel-based data charting form with a representative sample of the studies to be reviewed. The finalized data charting form was developed for extraction of the following study attributes: author, year of publication, country of origin, study design, topic, setting, theoretical model, target group, focus elements, purpose, and key findings. The first author independently extracted and charted the data from each article. The senior author checked the extractions and updated the data charting form in an iterative process.

2.5. Collating, Summarising, and Reporting the Results

The research team summarized and reported the key findings that emerged from the charting process. The first author then synthesized the key findings into potential evidence informed recommendations using an inductive content analysis approach. This approach involved applying codes to the key findings to reduce and group data into mutually exclusive concepts. Next, the research team reviewed and revised the coding for the potential evidence-informed recommendations and further reduced and grouped the data, which were later collated into broader congruent groups.

3. Results

The search identified a total of 197 citations through three databases. Figure 2 showed that 47 citations were found from ERIC database while 71 citations were identified from WoS search system. A total of 79 citations were extracted from Scopus database based on the search strings applied.

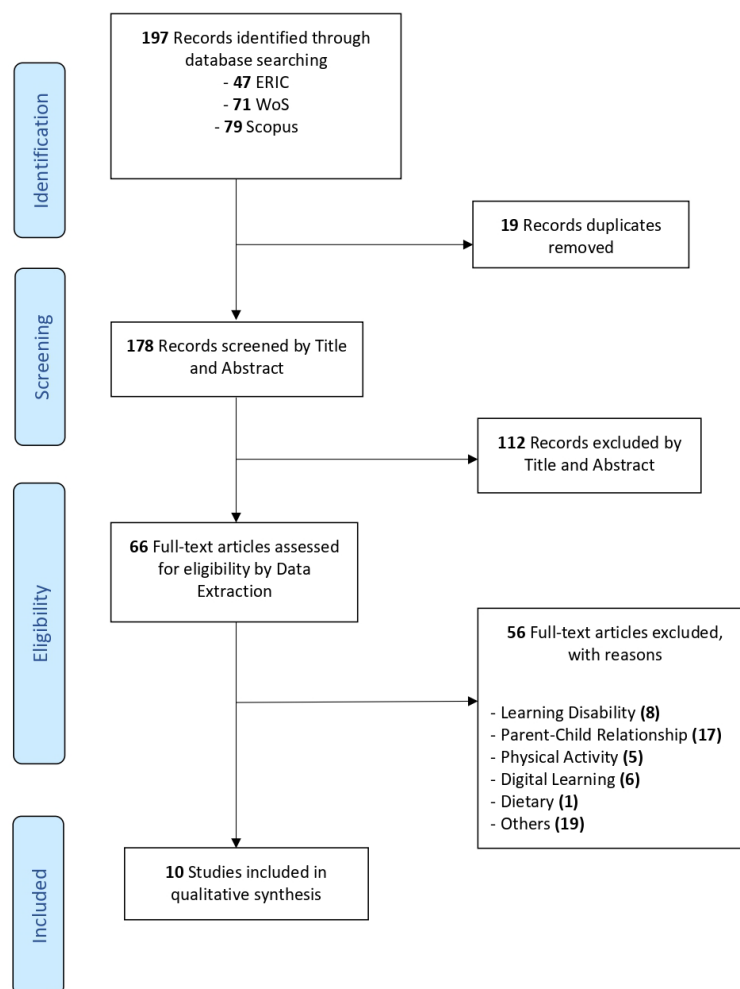


Figure 2. Flow diagram of scoping review

As seen in Figure 2, 19 duplicates were excluded leaving 178 citations were screened by title and abstract. From the screening process, 112 citations were excluded. 66 citations were assessed for eligibility by data extraction from full text reviewed. Of the 66 articles, 56 citations were excluded as they did not meet the criteria of outdoor learning and age range. 8 articles were describing on children with learning disability while 17 articles were on parent-child relationship. From the 56 citations, 5 articles were on physical education, 6 articles were on digital learning and one on dietary. The remaining 19 citations were a blend of various topics. Hence, 10 studies were identified to be included for this review.

3.1. How is the research focused on outdoor play among children distributed?

The included studies were published between 2018 and 2021. In 2018, a total of n=3 articles were found to have conducted research on outdoor play among children. In addition, there were n=2 studies identified from 2019 and 2020 respectively from the three databases. In 2021, a total of n=3 titles identified to be related to outdoor play among children included in this scoping review. In term of distribution, the highest number of studies were conducted in United States with n=4. This followed by Canada with n=2 studies on outdoor play among children. In European continent, n=3 studies were identified from United Kingdom, Greece, and Spain with one study each. There was one study conducted in Australia found to be related to outdoor play among children that was extracted from the said databases.

3.2. What are the design types of the studies related to outdoor play among children?

Overall, from the 10 identified articles, there were n=6 studies published in the form of review. Four were Systematic Review while one was conducted using Narrative Review. In addition, one study integrated both Systematic Review and Meta-analysis. On the other hand, n=2 were quantitative studies that involve experimental research design. In term of qualitative research design, n=1 used observation for outdoor play among children. There was n=1 applied mixed method through survey and followed by semi-structured interview.

3.3. What are the purposes and topics for which outdoor play among children are developed?

There were various reasons for conducting the study on outdoor play among children. There were studies on outdoor play and on how it impacts children's well-being (n=2) in relation children's behavioural, physical, social and emotional. There were studies that focused on social skills and social interaction (n=2) identified from the included articles. In addition, studies that highlighted physical environment and space (n=2) were also identified from this scoping review. On the other hand, two articles were related to outdoor time and play while another two articles were on child engagement to outdoor play extracted from the scoping review.

Table 4. Characteristics of Included Studies

References	Country	Study Design	Topics	Setting	Theoretical Model	Target Group	Focus Elements	Description	Results
Tersi and Matsouka (2020)	Greece	Quantitative - Experimental	Structured Playfulness on Social Skills	Preschool	Social Development Theory	4-6 years old	Social Skills Social Cooperation Social Interaction Social Independence Problem Behaviour	The purpose of this study was to examine the effect of a structured, playful activity program on the development of social skills in preschool aged children (4-6 years) during break time in the schoolyard of kindergarten.	The results indicated that both groups exhibited significant improvement in the investigated social behaviours. Nevertheless, in the final measurement the intervention children showed significantly higher improvement in the externalizing problems than the control group. The findings highlight the need for early detection of developing behavioural problems and the positive effect of a playful activity structured program in the schoolyard during breaks on the development of pre-schoolers' social skills.
Terrón-Pérez et al. (2021)	Spain	Systematic Review	Physical Environment and Physical Activity Level	Preschool	NA	2-6 years old	Physical health Environment engagement	The aim of this study was to understand the influence of the physical environment on the physical activity (PA) behaviour of preschool children (aged 2 to 6 years), in order to provide an overview of these	PA is of great importance for the prevention of obesity and cardiovascular diseases since childhood. The physical environment has a direct relationship with the different domains, where people can spend

								influences from the perspective of the ecological model.	their time being physically active. Nonetheless, despite the importance of the physical environment to engagement in PA, very few reviews have focused on this relationship in the context of the growing problem of physical inactivity among preschool children.
Dinkel et al. (2019)	U.S.	Qualitative - Observation	Physical and social unstructured outdoor play behaviour	Childcare centres	NA	0-3 years old	Environment of outdoor play areas influences behaviours	The present study examined infants' and toddlers' physical and social unstructured outdoor play behaviours within childcare centres.	The outdoor play environment influences infants' and toddlers' physical and social play behaviours; however, more research is needed to determine the optimal environment for development.
Kemp and Josephidou (2021)	U.K.	Narrative Review	Babies' and Toddlers' engagement outdoor	ECEC	NA	0-2 years old	Outdoor as physical active Outdoor as risky space Challenge to create outdoor environment Significance of practitioner outdoors	This paper reports the findings of a narrative review of international research literature about babies' and toddlers' engagement with the outdoor environment whilst attending ECEC (Early Childhood Education and Care) settings.	The article argues that there is a need to re-conceive the ways in which the youngest children engage with the outdoors and to move beyond possible narratives of exclusion.

Truelove et al. (2018)	Canada	Systematic Review & Meta-analysis	Physical activity and Sedentary time	Childcare Centres	NA	2-5 years old	Outdoor playtime	This systematic review and meta-analysis sought to examine the physical activity levels and sedentary time of young children (2–5 years) during outdoor play periods at centre-based childcare.	Overall, young children have the potential to be highly active during outdoor play sessions at centre-based childcare; however, many children still engage in substantial amounts of sedentary time.
Morrier and Ziegler (2018)	U.S.	Quantitative - 2x3 ANOVA	Factors related to increases in social interactions	Preschool	NA	2-7 years old	6 specific social variables	This study aimed to examine factors that might be related to the increases in social behaviours demonstrated by children with ASD and their typical peers during a <i>Buddy Game</i> intervention.	Results indicated the Buddy Game increased overall social interactions and that social interactions were influenced more by ASD status than age.
Lee et al. (2020)	Australia	Systematic Review	Impact of unstructured play on physical, social and emotional wellbeing	Preschool	NA	3-7 years old	Physical Emotional Social	This review aimed to examine the impact of unstructured play interventions on young children’s physical, emotional and social wellbeing.	Through this review, we identified that increased physical activity and, to some extent, improved psychosocial wellbeing, were supported through unstructured play incorporating either movable or fixed equipment in the playground or outdoor play area.
Militello et al. (2018)	U.S.	Mixed method	Parent and child perspectives	Open	Theory of Planned Behaviour	5 and above	Outdoor environment and Family	The aims of this study were (1) to explore the Pokémon GO user	Findings from this study highlight that, for a period of time, Pokémon

			of gameplay					health	experience from a family perspective and (2) to investigate Pokémon GO within the context of family health.	GO fostered social and physical well-being for children and families through a multifaceted approach.
			- Survey							
			- Semi-structured Interview							
Meyer et al. (2019)	U.S.	Systematic Review	Play Streets for active play	Open	NA	5 and above	Play Streets Play Streets-style intervention	Play Streets	This systematic review examines how Play Streets impact opportunities for children and adolescents to engage in safe active play and physical activity, and for communities and neighbourhoods. Methods for evaluating Play Streets were also examined.	In general, Play Streets provided safe places for child play, increased sense of community, and when measured, data suggest increased physical activity overall and during Play Streets
Lee et al. (2021)	Canada	Systematic Review	Outdoor Play and Time	Open	Socioecological Model Framework	3-12 years old	Factors facilitate or inhibit children playing or spending time outdoors.		This systematic review synthesized evidence on the correlates of outdoor play and outdoor time among children aged 3-12 years.	Individual, parental, and proximal physical (home) and social environments appear to play a role in children's outdoor play and time. Ecological factors (i.e., seasonality, rurality) also appear to be related to outdoor play/time.

3.4. What are the elements been researched into by the past research?

As seen in Table 4, there were n=2 studies researched into social variables as the elements of focus involving skills, interaction, cooperation, independent and problem behaviour. In addition, n=1 article related to children's well-being looked into physical, emotion and social ability pertaining to outdoor play was identified. Majority of the articles were researching into the effect of outdoor environment (n=6) on quality of health and engagement in outdoor play. Besides, n=2 articles were stressing on outdoor playtime. There were also studies that researched into outdoor facilities and play space (n=2) identified for this scoping review.

3.5. What is the theory behind the design of the outdoor play among children?

In an overall, majority of the articles extracted for review (n=7) did not include theoretical model. These studies were mostly focusing on systematic review. The study in examining the effect of structured playfulness on children's social skills had applied Social Development Theory in its' study. In addition, a study on parent-child perspectives of gameplay had applied Theory of Planned Behaviour into its' study. On the other hand, Socioecological Model Framework was applied into a study pertaining to correlation between outdoor play and outdoor time among children.

3.6. What are the current findings of outdoor play on children's well-being?

Based on this scoping review conducted, two major findings were identified from the 10 articles reviewed. The first finding was related to children's play behaviour. Results from four studies indicated that outdoor play influences children's physical, social, and emotional well-being. The findings showed that children's outdoor play increased physical activities, and this has improved their psychosocial well-being. In addition to this, the second finding showed that environment engagement (n=6) played an important role in getting children to be highly active during outdoor play. Physical environment was said to be having direct relationship in increasing social interaction with the right amount of time spent.

4. Discussion

4.1. Importance of Outdoor Environment

For children, education should not be restricted in a school building. It should go beyond the school walls as outdoor environments are critically significant in running and releasing energy and acquiring scientific research skills such as observation, examining, and exploring (Yıldırım & Akamca, 2017). While research regarding the benefits of outdoor learning has examined cognitive, affective, interpersonal, social, physical health, and behavioural impacts, MacQuarrie et al. (2015) stated a lack of research exploring the acceptability and mechanisms behind outdoor learning being effectively implemented regularly education.

The outdoor environment is a unique learning setting that is qualitatively different from indoors. For instance, it provides an open space and a greater degree of freedom to try things out, explore and experiment without the constraints associated with an indoor environment (Marchant et al., 2019).

Therefore, the outdoors provides more space for children to feel free to interact with nature. Additionally, indoor spaces are domains where adults are more in control, while outdoors is considered a place where children can escape the watchful and controlling eyes of adults (Chawla, 2020).

4.2. Experiential Learning in Outdoor Play

The term 'Experiential Learning' by Kolb (1984) is a process whereby experience is a learning and development source. The concept of experiential learning explores the cycles of past human experiences by emphasizing on the connection of concepts taught in the classroom to life application (Seaman et al., 2018). Kolb's experiential learning cycle revolves around four stages of basic learning styles: experiencing, reflecting, thinking, and acting (Pamungkas et al., 2020). Depending on any situation or environment, the learner will base on their experiences in the past. Therefore, in children's development, it is not just information that transfers from the book to the brain but also related to life skills. Also, the basis of experiential learning is that experience that matters.

Educating children is always associated with the teachers as these children spend most of the day at school. However, the parents must have the sense of commitment and initiative to solve problems that lead to lifelong learning (Marchant et al., 2019). Throughout the Experiential Learning process, the children are engaged with the experiencing, reflecting, thinking, and acting cycle. Therefore, this enables children to experience 'hands-on' that involves physical and social interactions with nature initiated by the cognitive. As mentioned by (Linzmayr et al., 2014), when children are highly engaged with nature, it will change their arousing experiences influenced by their cognitive and behavioural. If children respond well to the environment, it could help them relate to their personal and interpersonal.

4.3. Outdoor Play and Child's Development

In early childhood settings, outdoor play environments are a fundamental and necessary component in supporting children's physical, cognitive, emotional, and social health (Loebach & Cox, 2020). When children connect with nature, it is found that the natural playgrounds promote more challenging play (Bento & Dias, 2017). According to Zamani (2016), children expressed their skill and creativity through cognitive play offered in the natural setting. In other words, their preferences evolving play milieu within the natural and mixed zones. Therefore, to relate to their previous knowledge of the natural zones during cognitive play, children are encouraged to use their ability to explore nature (Kiewra & Veselack, 2016). Creativity in handling the surroundings helps understand nature, and children gain deep satisfaction and knowledge through play.

Children will try to manipulate physically, socially, and emotionally. Anderssona and Ohman (2015) stated that outdoor experiences in outdoor play practices relate to moral attitudes towards nature. Simultaneously, to have healthier and physical children, the most practical activities let them go for outdoor play to scaffold children's learning and development (Milteer & Ginsburg, 2012). Therefore, playing outdoors engages them mentally, physically, socially, and emotionally. As part of outdoor play with nature, it also tends to reduce stress and anti-social behaviours, decreasing their interest and care for the environment in return.

5. Conclusion

Our study reveals a need for more rigorous studies to demonstrate the impacts of outdoor play on children's psychosocial well-being and the possibility of exploring into strategies applied in assessing outdoor play engagement in order to enrich the understanding of different contexts. This will help document best practices that can be implemented across different settings and contexts. As we stated earlier, outdoor play among children remains a topic studied in specific or local contexts and that partly limits the capacity to generalize its potential impacts on specific determinants of children's well-being.

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