Conceptualising Outdoor Learning to Facilitate Children's Well-being and Academic Achievement

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Abstract

Due to current technological advancements, children spend an increasing amount of time each day engaged in sedentary indoor activities to seek entertainment instead of spending time outdoors. The decline in outside access for many children has caused social and physical health issues that have become more prevalent in recent years that might affect them in the long term. This research aims to identify the impact of outdoor learning on children's well-being and academic achievement. PRISMA-ScR criteria were used to conduct the literature review of the effects of outdoor learning on children's development. According to the research study, four aspects of well-being have been classified: social, emotional, physical, and cognitive. This study adapted the Outdoor Education Model and proposed a conceptual model to demonstrate the significance of outdoor learning for children's psychosocial development. The proposed conceptual model can guide educators and policymakers when planning outdoor learning to cater to children's needs, such as their well-being and academic achievement.

Keywords: outdoor play; early childhood education; children well-being; academic achievement

1. Introduction

With the 21st century trend, Malaysia is undergoing an information and technological revolution. We live in an era of industrial economic competitiveness, which demands individuals to possess critical, innovative, imaginative, and creative thinking abilities. According to the Malaysia Education Blueprint 2013-2035 (Ministry of Education, 2013), to improve the quality of education in Malaysia, the most pressing problem today is to assist pupils in developing higher-order thinking skills. It emphasises the significance of including children in learning activities that encourage higher-order thinking. However, notwithstanding the declared emphasis on improving student thinking through a highly coordinated national curriculum reform initiative, evidence of teachers' classroom activities in Malaysia runs against the grain of promoting student thinking. In Malaysian classrooms, teachers' approaches appear to be at odds with a developing knowledge society (Tee et al., 2018). Mohd Hisham et al. (2017) study on teachers' difficulties in incorporating higher-order thinking abilities into their classroom shows four elements that become a barrier for them: teaching and performing critical thinking, creative thinking, decision-making, and problem-solving. Furthermore, due to common core requirements, standards-based assessments, and high-stakes testing, teachers have minimal time to implement new programmes (Best et al., 2017) to cater to current educational needs.

Besides the issue mentioned above, due to technological advancement and urbanisation in the current era, children are more likely to spend their time indoors with their gadgets as compared to their older counterparts (Zaid et al., 2021). Consequently, with the emergence of various electronic activities and games, the opportunity for outdoor and nature-based play has decreased (Burke et al., 2021). Based on a recent study by Raj et al. (2022), in Selangor, Malaysia, more than 90% of children under the age of five surpassed the WHO's recommended screen time for their age group. The majority (66%) of them watched television, followed by handheld gadgets and computers. This is a concerning issue that should be taken care of since it can reflect their emotional and mental well-being. According to Twenge and Campbell (2018), high screen users were substantially more likely to exhibit poor emotion control, including maintaining composure, inability to complete tasks, low curiosity, and difficulty forming friends.

Furthermore, the research also highlights that adolescent who have significant amounts of screentime were twice as likely to be diagnosed with depression or anxiety or require treatment for mental or behavioural health issues (Twenge & Campbell, 2018). In addition, today's children are in danger of developing Childhood Psychosocial Dysfunction (CPD), which might limit their mental and emotional well-being in daily life (Soliman et al., 2020). According to the National Health Morbidity Survey in 2015, 12.1% of Malaysian children have mental health disorders (Malaysian Mental Health

Association, 2019). If this issue is not addressed, it may cause a long-term negative impact on their life.

As a result, this research is necessary to identify the importance of outdoor learning to children towards their well-being and academic achievement. This is especially relevant because studies reveal that children's mental and physical health has deteriorated lately. Regular physical activity and outdoor engagement could enhance their health and educational performance (Becker et al., 2017). Changing their learning environment to an outdoor setting gives students a vibrant context to shape their learning and allows movement, stimulation, and attention, which lets them focus more effectively (Cameron & McGue, 2019). As a result, it will enhance learning and engagement, broaden skill development, and increase health and enjoyment in the classroom (Quibell et al., 2017). Furthermore, it benefits the children and avoids the issues mentioned above, as outdoor learning was considered to minimise the amount of time spent sedentary during typical classroom-based teaching (Marchant et al., 2019). Thus, this study aims to identify the impacts of outdoor learning on children and its effect on their development.

2. Literature review

2.1 Importance of Outdoor Environment

According to the biophilia hypothesis, humans have an innate connection with nature and require it for aesthetics, intellectual, cognitive, and spiritual value (Kellert & Wilson, 1993 as cited in Mustapa et al., 2018). The outdoors provides a unique experience that captures the attention and interest of children. In their study, Kuo et al. (2018) mentioned that acute doses of wilderness, whether in the brief view of trees through the window or a stroll through a park, would improve attention and cognitive ability. Interaction with nature has been linked to essential aspects of classroom engagement, but it has also been linked to improved academic attainment in greener schools and classrooms (Kuo et al., 2018). Positive interactions with and in nature are also important for young children's health and development (Dankiw et al., 2020). Moreover, the experience of wonder and exploration impacts meaningful learning and enables the formation of an emotional bond with the environment (Bento & Dias, 2017).

The outdoor environment is important because children who are disconnected from nature when they are young will become even more disconnected as adults (Mustapa et al., 2018). Ensuring the quality of the setting so that they may connect with nature will have a lifelong impact on the children (Mustapa et al., 2018). Children learn about themselves and the world around them when they spend time outside, establishing a sense of self in connection to the natural environment (Burke et al., 2021). Yildirim and Akamca (2017) mentioned that other than the classroom, activity-based, integrative, and exciting learning environments give emotional experiences and opportunities for

children to work independently. This type of environment can be introduced through outdoor education. Unlike indoor learning, the outdoor environment provides a broader area for children to interact. Hence, it allows children to try things out, explore, and experiment without the confines of an indoor setting (Marchant et al., 2019). Besides that, outdoor environments help children acquire abilities relevant to scientific inquiry, such as inference, measurement, and observation (Yildirim & Akamca, 2017).

2.2 Experiential Learning

In its simplest sense, experiential learning is education and learning through hands-on engagement and experience with the world around us; it is learning by doing (Kolb, 2015, cited by Kimmes, 2017). Experiential learning is necessary for schools to create knowledge and new activities based on previous experiences (Bouhazzama & Mssassi, 2021). There are many benefits of incorporating experiential learning in an outdoor setting. Kimmes (2017) mentioned that children would be more connected to nature if they could touch, feel, smell, hear, and even taste the surrounding environment rather than just reading about it. Besides that, experiential learning enables children to obtain critical thinking abilities, physical activity, social connection, a sense of identity, a sense of place, and responsibility towards the environment (Kimmes, 2017).

In Marchant et al.'s (2017) study, the pupils mentioned that outdoor learning allows refuge from the suffocating confines of the classroom and increases exposure to the environment and their involvement with nature, which increases their understanding. Using outside spaces helps children learn from experience and practice and actively interact with what they are learning (Yildirim & Akamca, 2017). The children can learn more about themselves and the world through experimenting, solving difficulties, thinking creatively, and cooperating with others (Bento & Dias, 2017)

2.3 Outdoor Learning and Children's Development

The definition of outdoor education is varied. Based on Cameron and McGue (2019), outdoor education is an experiential learning method that allows students to learn through all their senses by exposing them to the natural world. Meanwhile, based on Best et al. (2017), 'outdoor education', as a broad concept, encompasses authentic learning experiences and learning by doing while using the outdoors as a classroom. Bento and Dias (2017) support that play promotes cognitive, physical, social, and emotional well-being as a natural and engaging activity, providing the necessary conditions for children to grow and develop. By incorporating outdoor education, children are more encouraged to engage in free play that allows them to harvest necessary physiological, social, and cultural experiences while still in the early stages of life (Storli & Hansen Sandseter, 2019).

Providing children with natural places and surroundings with various amenities encourages them to play outside and allows them to explore nature. Play and experience in nature, therefore, contribute to children's cognitive, physical, and social development, as well as to the restoration of positive feelings, the development of a sense of place, empathy, and concern for nature, and the positive association of environmental behaviour and attitude (Mustapa et al., 2018). After a ten-week outdoor education programme, Yildirim and Akamca's (2017) research showed that the children significantly enhanced cognitive, linguistic, social-emotional, and motor skills. Besides that, through unstructured outdoor play, Bento and Dias (2017) discovered that children can relieve stress, satisfy their desire for creativity and adventure, and develop critical life skills, such as sociability, problem-solving, and safety.

Although there is limited research on outdoor learning in the Malaysian context, in a recent study by Abd Rahim et al. (2020), teachers positively view nature-related activities as an opportunity to engage in immersive and meaningful activities everyday educational activities about and in nature. However, they did not organise nature-related activities, particularly outdoors, since parents were afraid that their children would be wounded or dirty, which was the main impediment to implementing these activities. Thus, it is important to conduct this study, to give awareness to parents, teachers and policymakers on the significance of outdoor play in children's development since.

3. Research Method

To identify relevant studies that could contribute to the research in identifying the impacts of outdoor learning on children, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) criteria were used. This study followed the methodological framework developed by Arksey and O'Malley (2005), which included the following steps: (1) identifying research questions; (2) identifying relevant studies; (3) selecting relevant studies; (4) charting the data; and (5) collating, summarising, and reporting the results.

The articles were searched in three databases: Education Resources Information Center (ERIC), Web of Science (WoS), and Scopus, dated from 2018 to 2021. "Impact," "outdoor learning," "children," "well-being," and their synonyms were among the terms used in the databases during the search.

After identifying and obtaining the articles through PRISMA-ScR criteria, the researchers removed duplicates and screened the remaining articles by reading the title and abstract and screening the articles based on the inclusion and exclusion criteria. The inclusion criteria were articles published from 2018 to 2022, articles in the English language, and articles that focus on outdoor play and children or pre-schooler. Meanwhile, articles that have been excluded were those that were published before 2018, articles in other languages than English, articles that are not related to outdoor

play, and the target group were not children. Once eligible articles have been identified, the text of the articles is examined to extract relevant and useful information for this study. This is to reduce the number of articles evaluated and guarantee that those reviewed are relevant to the current study. The research team then discussed and made the decision that the following article attributes should be extracted and included in the table: author, publication year, focus elements, and theory. As those attributes will then help the researcher determine an appropriate theory that can be adapted to the conceptual model.

4. Result and Discussion

Table 1 shows the articles that could be found after the researcher's rigorous process to understand the impact of outdoor play on children. The results were then categorised into four elements: social, emotional, cognitive, and physical. As seen in the table, all the articles (n=7) showed that outdoor learning has a positive impact on children's social well-being, followed by physical (n=5), cognitive (n=4) and emotional (n=3).

Table 1. Focus Elements and Theories

No.	Studies	Focus Elements				Theory
		Social	Emotional	Cognitive	Physical	
1.	McCree et al. (2018)	X	X	X	X	Theory of Change
2.	Omidire et al. (2018)	X		X	X	Piaget's developmental theory & Erikson's life span theory
3.	Hinkley et al. (2018)	X				-
4.	Sando (2019)	X	X		X	Theory of Affordances
5.	Gil-Madrona et al. (2019)	X		X	X	-
6.	Rymanowicz et al. (2020)	X	X	X		Ecological System Theory
7.	Fathirezaie et al. (2021)	X			X	Theory of Affordances
	Total	**7**	**3**	**4**	**5**	

Table 1 also shows five theories used in the seven studies. Two (2) studies (Sando, 2019; Fathirezaie et al., 2021) have used the theory of affordances in their paper, McCree et al. (2018) used the theory of change, Omidire et al. (2018) in their study used Piaget's developmental theory and Erikson's life span theory to form their conceptual framework of structured movement educational activities. Besides that, ecological system theory was used by Rymanowicz et al. (2020) in their study.

The construction of the conceptual framework for this study is based on the numerous models and theories included in Table 1. Keywords such as "outdoor learning theory" and "outdoor play theories" were used to find relevant articles in the Google Scholar database.

Out of all the existing theories and models found, there were two articles (Tuuling et al., 2018; Mohamed et al., 2021) that used a model that was adapted from Higgin and Loynes's Outdoor Education Model (1997). In Tuuling et al.'s (2018) study, the model included is The Five-stage Model by Szczepanski and Nicol (2005), which was adapted from Higgins and Loynes's model.

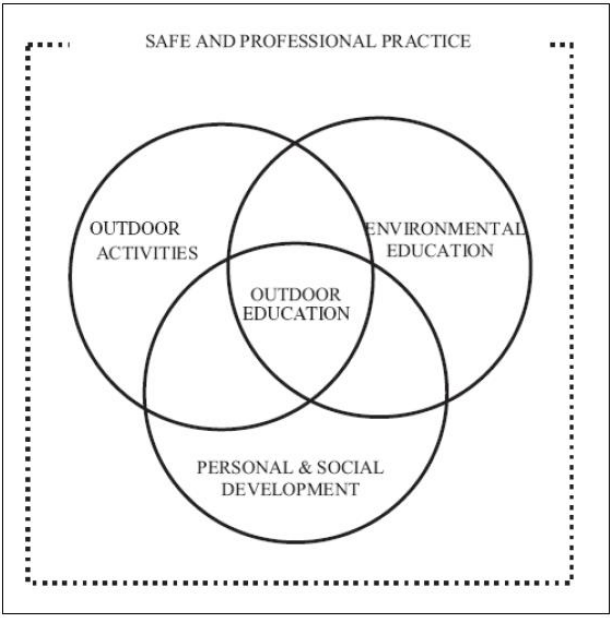

Figure 1. Outdoor Education Model (Higgins & Loyne, 1997)

As mentioned in their study "A Guide for Outdoor Educators in Scotland" in 1997, outdoor education included three primary areas: outdoor activities, environmental

education, and social and personal development. Educators implemented these areas based on the children's needs. When each of the areas is implemented together or on its own, it is considered outdoor education.

Outdoor activities may include any physical activities that were done outdoor. Higgins and Loyne (1997) mentioned that the development of outdoor education could be regarded as a result of those who participate in outdoor activities that recognise its potential for formal and informal education. Many skills can be developed through outdoor activities. For example, rock climbing is an activity where a person good motor skills and problem-solving skills to advance. In addition, environmental education is a learning process whereby children learn to understand and acknowledge the importance of the natural environment. Without it, children will not develop a connection with nature which may make their attitudes and actions ill-informed (Higgins & Loynes, 1997). Through outdoor activities, children have the opportunities for direct contact with the natural world, leading to the reacquaintance of outdoor educational experiences (Higgins & Loynes, 1997). Thus, such reacquaintance of knowledge and experience enables them to develop their personal and social development.

4.1 The Proposed Conceptual Model

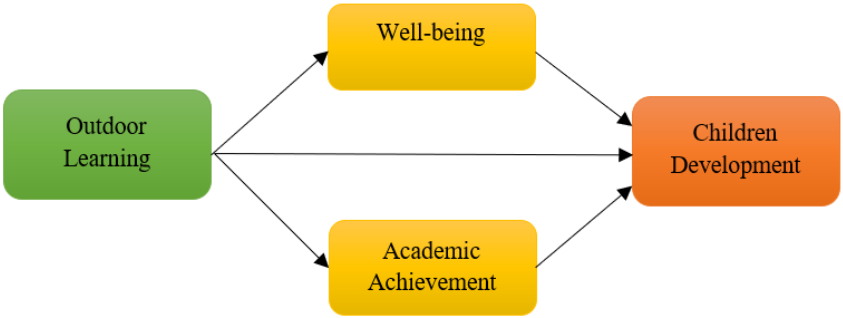

Figure 2. The Proposed Conceptual Model

The proposed conceptual model, as shown in Figure 2, is a model that was formed based on the findings of the literature reviews, which include the impacts of outdoor learning on children and also adapted from Higgins and Loynes's Outdoor Education Model (1997). This study proposed the conceptual model in Figure 2 to show the effect of outdoor learning on children's development, whereby outdoor learning impacts the children's social well-being and academic achievement, which will help in children's psychosocial development.

4.2 Outdoor Learning

The phrase 'outdoor learning' has been used in the literature to represent a variety of educational activities ranging from local nature play settings to formal school curriculum classes (Marchant et al., 2019). Outdoor learning gives a positive impact on children's social well-being, as mentioned in Streelasky's (2019) study, they found that outdoor space offered a context in which children could interact meaningfully, creatively, and collaboratively with each other and the environment. Besides that, through outdoor learning, children tend to play with their surroundings such as natural loose parts such as leaves and sticks that can be used as interactive tools for learning. It is well known that interactive tools are an effective means of encouraging independent learning (Woo et al., 2021) which enables them to think inquisitively and motivates them to learn more. In addition, the outdoors provides rich sensory experiences that could help in children's development.

It is known that the outdoor environment provides children with a wide range of space to run and play, in addition to its various natural stimuli such as flora and fauna, which allow the children to think creatively and critically. In addition, based on Abd Rahim et al.'s (2020) study, outdoor learning gives children more precise and long-lasting knowledge about nature than the conventional learning method. It showed that outdoor learning is a good method to develop and enhance their cognition. Thus, children should have frequent and meaningful opportunities to play, explore, and learn in natural or urban outdoor settings, such as a playground, neighbourhood park, or nearby open place.

However, due to parents' busy schedules and reluctance to allow their children to spend time outdoors due to the danger that might come, it becomes one reason children nowadays do not engage in outdoor activity anymore (Abd Rahim et al., 2020).

4.3 Children's Well-being

According to the World Health Organisation (WHO) (2019) recommendation, children, including those with disabilities, should be encouraged to engage in fun and safe physical activities that promote their natural growth. Outdoor activities are crucial to prevent the potential detrimental repercussions of over-exposure to sedentary activities. The nature of outdoor learning includes purposeful movement, students reported a sense of calmness, safety, happiness, and relaxation while learning outdoor (Webb, 2018), which would benefit their mental health. Besides that, students who struggle in the classroom might benefit from using the outdoors for diverse learning experiences. Their social development would improve as they work together and look for information (Bjorge et al., 2017) during the outdoor learning process. In addition, outdoor learning can enhance classroom conduct by increasing students' willingness to

study and building confidence. Based on past research studies, outdoor learning positively impacts children's well-being, helping their psychosocial development. Cameron and McGue (2019) observed that kids were more likely to have an overall better attitude after being exposed to the outdoors based on the Attitude Assessment that they took and agreed that having the choice to work outside encouraged them to work harder.

4.4 Children's Academic Achievement

Past studies have shown that outdoor learning can improve children's academic achievement, which will help them increase their cognitive development. This can be measured through assessment, observation, and surveys from the teachers to identify the students' academic grades and information retention. There are also a few elements that have been observed by other researchers, such as classroom engagement, class participation, and attendance. In Kuo et al.'s (2018) study, the students retain a higher level of classroom engagement after lessons in nature, allowing teachers to teach for nearly twice as long without interrupting instruction to refocus students' attention. When the children are more engaged in the classroom, they will better understand and retain the information. This can be supported by Bjorge et al. (2017), whereby the students are more engaged in the activity and are more involved in seeking answers about the topics discussed, indicating high participation. Besides that, a recent study by Khan et al. (2020) shows that outdoor space with purpose and learning opportunities can improve academic performance. Children taught outside had considerably higher exam results in science and math than children taught indoors (Khan et al., 2020). Thus, it is essential to include academic achievement in this study to identify the impact of outdoor learning on children.

4.5 Children's Development

Vujičić et al. (2021) mentioned that developmental neuroscience pays close attention to a child's interaction with their immediate surroundings, emphasising how a stimulating environment will affect neural connections in the brain. It has been discovered that the more prosperous, more exciting, and more opportunity-rich the environment, the higher the development of neural networks. Rodrigues (2021) emphasised the importance of a child's environment in structuring learning and development by Jean Piaget (1951) and Maria Montessori (1965). Hence, outdoor learning is one of the best methods in which children can play and learn simultaneously in an environment that provides a variety of stimuli and opportunities that will allow optimal brain development.

In an outdoor setting, children will be able to discover new objects, colours, shapes, smells, and phenomena. This will enable them to inquire and discuss with their friends and teachers, which develops their perspective-taking abilities, this refers to when a child discovers that their perspective differs from that of others and that others differ from their own (Taylor, 1988, as cited in Rodrigues, 2021). Perspective-taking is essential for children's social development since it helps them build good connections with others. Besides that, an outdoor setting is the best way for children to interact with their friends since they are able to move around. Making friends, sharing, solving problems, and engaging in groups are vital social skills to acquire throughout childhood. Children who do not seek help when they need it or who rely too much on it are in danger of developing developmental difficulties (Moore et al., 2016).

According to health experts and educators, emotion control, social development, behavioural problems, and obesity are all issues children face when they live away from nature and activity (Karaca, 2020). This is the reason why outdoor learning plays a vital role in children's well-being and academic achievement. Without the correct stimuli, children's development is at risk, especially in a fast-changing society where it is harder for children to develop holistically when they are not given the right environment.

5. Conclusion

To conclude, this study has identified the impacts of outdoor learning on children through the literature reviews, categorised into four categories: social, emotional, physical, and cognitive. All the elements are essential to ensure children's full potential. Based on the literature review, a conceptual model has been developed as a proposed guideline to take the initiative and provide a better learning environment for the children. Also, to prevent the children from having a long-term negative impact on mental, physical, social, and emotional well-being due to lack of involvement in outdoor activity. Moreover, the Malaysian education system's emphasis on indoor learning rather than outdoor learning limits learning with nature (Saleh et al., 2019). Hence, the proposed conceptual model would help policymakers identify any gap in the current educational system that could be improved.

6. Recommendations

This study proposed a conceptual model that could help educators and parents to understand the importance of outdoor learning on children's development. However, there are a few limitations that can be improved.

Since the study only focused on the impact of outdoor learning on children's development to give an awareness of its importance, there is still a lack of research in the Malaysian context. Hence, it will be beneficial for future studies if the research

identifies the challenges educators and children experience in outdoor learning. Furthermore, it can develop appropriate strategies to combat the challenges and develop outdoor learning activities that can help cater to children's well-being and academic needs.

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