



Outdoor Learning Activities in Early Childhood Education: Exploring Benefits and Challenges Through Bibliometric Analysis

Nice Maylani Asril^{a*}, Ni Wayan Surya Mahayanti^b, Ni Komang Arie Suwastini^c, I Wayan Artanayasa^d, Yukiko Masumoto^e, Fumiko Kagiura^f

^{a,b,c} Universitas Pendidikan Ganesha, Indonesia

^d Seinan Jogakuin University, Japan

^e Hiroshima International University, Japan

Correspondence: nicemaylani.asril@undiksha.ac.id

Received: 25 Aug 2024 **Accepted:** 29 Sep 2024 **Published:** 30 Oct 2024

Abstract

Despite the growing recognition of positive effects on children's physical, cognitive, social and emotional development through outdoor learning within early childhood education (ECE), these practices are inconsistently integrated into ECE curricula. Current study analyses bibliometric research to explore the trend in fitness training and highlights pertinent authors who conducted valuable research on this issue. Through DimensionAI system, 43 publications were found using “outdoor learning” AND “early childhood” in Titles and Abstracts fields; Among them: After the application of inclusion criteria for OA (open access) articles by English language indexed also ownership as an open repository through Dimensions we selected a total number $n = 18$ articles which had been published between years from 2015 to date. Based on Microsoft Excel, VOSviewer was employed to construct the co-authorship networks of authors and characterize patterns in terms of citation or between subfields. Analysis indicates a marked increase in research activity over the last few years, which is reflective of an increased interest in outdoor learning. At the same time, it identifies limitations such a focus on as minority of scholars influencing outdoor learning research and limited incorporation into larger educational frameworks. More research is needed on practical challenges and for this generation, in resource-constrained settings. These results also underscore the need to broaden both representation within research and practical approaches of outdoor early education. Findings from the study of research provide a snapshot on what we know and do not know, as well promising directions for researchers to continue with their work in order to help reduce inequity.

Keywords: Bibliometric analysis; early childhood education; outdoor learning

1. Introduction

The main goal of early childhood education is to promote the overall development of children. They possess several aspects of self, including emotional, social, physical, creative, and cognitive dimensions. Thus, children need a variety of learning environments in order to develop optimally. Play is an effective tool to do that since it promotes the overall well-being and learning of young children during their early childhood (Coelho et al., 2017). Outdoor play and activities give children an array of learning opportunities with numerous possibilities. All these plays and activities impact the overall development of children in many aspects (Bilton, 2010; Dahlberg et al., 2007). With the society being in such a peculiar state—children are too used to playing online that they no longer have an opportunity to get out of their homes, run around barefoot or even breathe fresh air. Nowadays, many children and parents have experienced heavily limited outdoor activities with their families in the past,

and also appreciated even more than before the importance that open spaces represent for our children.

The outdoors is extremely important for children's education. Both educators and families are required to facilitate children's development by including play in many environmental contexts, including outdoor locations (Fjørtoft, 2001; Ginsburg et al., 2007; Leggett & Newman, 2017). Outdoor activities are not only beneficial for children's physical development, but they also play a key role in their social, cognitive, and emotional development (Bento & Dias, 2017; Gill, 2014; Tandon et al., 2019). In a study conducted by Coe (2017), it was shown that engaging in outdoor play and activities improves children's ability to interact with the world and acquire the essential skills needed to understand the intricacies of their environment. Outdoor play among children has a beneficial impact on their preparedness for school, as indicated by Becker, Grist, Caudle, and Watson (2018). Lundy and Trawick-Smith (2021) discovered that engaging in outdoor play activities can improve the cognitive development of preschool children. Prior to commencing any cognitive tasks with their instructors, it is imperative for the children to allocate a specific duration of time for outside play on the playground. Children's outdoor playtimes are essential for their development and rights (Kernan & Devine, 2010). Regrettably, the amount of time that youngsters spend outside is diminishing due to the evolving lifestyle patterns of countries. There has been a recent observation that youngsters are engaging in less outdoor play and are instead spending more time indoors (Bilton, 2010).

The current focus on the significance of outdoor activities in early childhood education programs and policy in many countries may still be inadequate (Norðdahl & Jóhannesson, 2016). The instructors, as professionals in the sector, have the main responsibility of engaging with youngsters. Tuuling, Õun, and Ugaste (2019) conducted a study to examine teachers' perspectives on outdoor learning and the potential for incorporating outdoor learning activities in early education settings in Estonia. The research findings indicated that while the instructors acknowledged the significance of outdoor learning, they did not effectively incorporate this relevance into their teaching methods. While it is crucial to include outdoor activities in the curriculum, the key factor is in how teachers interpret and incorporate them into their teaching methods. Chinese preschool instructors prioritize academic-oriented activities over outdoor play activities due to limited outdoor areas, a high child-teacher ratio, and cultural traditions that place greater emphasis on academic learning in preschools (Hu et al., 2015). The reluctance to fully embrace outdoor settings as a means of enhancing educational results is a major obstacle, frequently stemming from a limited grasp of the extensive educational benefits they offer (Maynard & Waters, 2007; Munroe & Mansell, 2016).

The incorporation of outdoor education in early childhood education in Indonesia offers distinct prospects and notable obstacles, mirroring wider worldwide patterns while also being influenced by particular local circumstances. Outdoor learning is gaining recognition as an essential aspect of early childhood education in Indonesia. It provides valuable opportunities for experiential learning, which promotes whole child development. Empirical research highlights the capacity of novel methods, such as game-based platforms like IcanDO and scientific educational models, to greatly improve the efficacy of outdoor learning in this context (Haenilah et al., 2021; Ritonga et al., 2023). Nevertheless, despite these encouraging advancements, the effective execution of outdoor education in Indonesia is impeded by several significant obstacles. Insufficient finance and limited access to critical resources and infrastructure pose significant obstacles for many early childhood education centers (World Bank, 2023). The incorporation of outdoor learning into educational practices is made more challenging by environmental limitations, such as restricted availability of secure and appropriate outdoor areas (National Development Planning Agency, 2013; World Bank, 2023). Furthermore, differing viewpoints among educators on the significance and practicality of outdoor learning present further obstacles. Several educators still have reservations about completely adopting outdoor learning owing to apprehensions over safety, limitations imposed by the curriculum, and a lack of proficiency in outdoor pedagogical techniques (Leggett & Newman, 2017). The difficulties are made worse by larger

structural problems, such differences in educational resources between urban and rural regions, which can make inequities in accessing high-quality early childhood education even worse (World Bank, 2023).

Given the increasing acknowledgement of the advantages of outdoor learning, it is essential to examine the elements that impact its successful implementation, especially in varied educational environments such as Indonesia. In order to gain a deeper understanding of these patterns, it is crucial to conduct a thorough analysis of the current body of research on outdoor learning. A bibliometric study is an extremely useful technique for identifying publishing patterns, determining the most frequently referenced journals, and categorizing research subjects in this field. This analysis offers a thorough and inclusive examination of the academic discussion, emphasizing important contributions, emerging subjects, and possible deficiencies in the literature (Yildiz et al., 2022). This strategy serves the purpose of not only charting the present state of research in the field, but also guiding future research priorities and policy decisions, so assuring the successful incorporation of outdoor learning activities into early childhood education. Through the utilization of bibliometric analysis, researchers can reveal trends and patterns that provide insights for the enhancement of outdoor learning practices and policies. The approach entails examining bibliometric data to evaluate patterns in publishing, citation, and cooperation networks within the field. This analysis yields significant insights into the present state of research and identifies potential topics for future investigation (Wang et al., 2016). The primary objective of this academic pursuit is to enhance the comprehension of outdoor learning in early childhood education, providing crucial perspectives that bolster the creation of more efficient methods and regulations. To guarantee that all children benefit from the comprehensive developmental chances it offers, educators and policymakers can overcome the hurdles and take advantage of the opportunities given by outdoor learning.

2. Method

The aim of this study is to determine research trends in the literature about outdoor learning on early childhood education by using bibliometric analysis. Searches on DimensionAI, using the combinations of key terms incorporated here (1) outdoor learning; AND; early childhood resulted in 43 publications among which identified fit our criteria and eligible for inclusion: published in English language texts classified as articles available as open access within journal format indexed by Dimensions publication set between years 2015–2024.

The data was organized in Microsoft Excel to ensure that it could be either accurately or consistently clean. Then, the pre-processed dataset was imported into VOSviewer software for constructing and visualizing bibliometric networks. VOSviewer allowed for the visualization of co-authoring networks and citation patterns as well as thematic clusters, thereby providing an overview on major players, influential papers or works in progress (research front).

This methodological approach offers an extensive snapshot of the field research efforts focused on outdoor learning in early childhood where main trends, relationships and gaps are pinpointed. The findings are supposed to inform research for the future and anything that can be done better in terms of practices, with respect to education.

3. Result

Publication Trends

The publishing trends on outdoor learning activities in early childhood education from 2015 to 2024 show variation, although there is a general increase, especially in recent years. Initially, there was a single publication in 2015, but there were swings in subsequent years, including a significant decline

to zero publications in both 2016 and 2018. In 2019, the field seen a substantial surge in activity, evidenced by the publishing of three articles. This presumably indicates a rising interest and acknowledgment of the importance of outdoor learning. Although there was a small decrease in 2020, maybe as a result of the pandemic's influence, the pattern remained steady, with three publications in both 2021 and 2023. The notable surge in research effort, as indicated by the eight papers in 2024, is presumably propelled by three primary factors: amassed interest, augmented financing, and innovations in the sector. This trend emphasizes the increasing acknowledgment of the importance of outdoor learning in early childhood education. It indicates that this field is gaining pace and is expected to continue developing as a significant area of research, influencing future educational practices and policy.

Publications (Total)

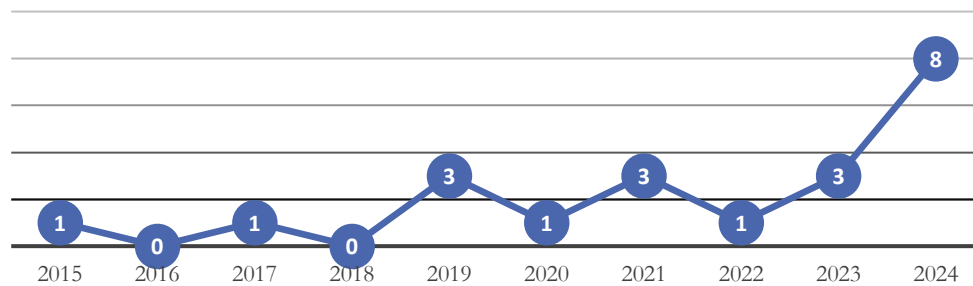


Figure 1. Publication Trends

Research Categories

An analysis of research categories on outdoor learning activities in early childhood education reveals that the majority of studies are focused on the general education category (17 publications), indicating a widespread interest in understanding the impact of outdoor learning on educational outcomes as a whole. Furthermore, much study has been conducted on the Education Systems and Curriculum and Pedagogy categories, highlighting a significant emphasis on incorporating outdoor learning into educational frameworks and curriculum, as well as the tactics used in teaching. Meanwhile, the presence of 8 articles in the category of "Specialist Studies in Education" indicates a notable focus on certain educational techniques or demographics. Nevertheless, this region is relatively uncharted in contrast to the others. The Education Policy, Sociology, and Philosophy area has the lowest publication count (2), suggesting a lack of study on the sociological, philosophical, and policy consequences of outdoor learning. This distribution indicates that although the area has made significant progress in practical and theoretical studies focusing on education, there is a lack of study on the wider policy and philosophical aspects of outdoor learning in early childhood education.

Research Category

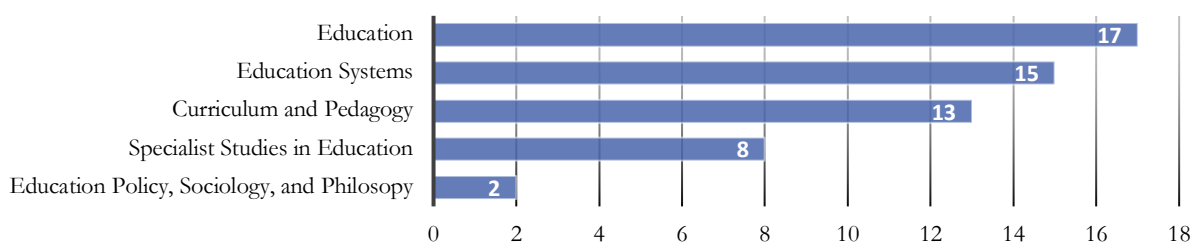


Figure 2. Research Category

Most Cited Journals

An analysis of the most commonly referenced publications in the area of outdoor learning activities in early childhood education demonstrates that the Australasian Journal of Early Childhood holds the highest level of influence, with 36 citations. This suggests that the journal plays a crucial role in developing research in this subject. The Geosfera Indonesia has obtained 14 citations, indicating its contribution of ideas from an interdisciplinary standpoint. On the other hand, the Journal of Early Childhood Teacher Education has garnered 9 citations, highlighting its significance in connecting outdoor learning with teacher education. The journals Educational Research and Journal of Childhood Studies have a lower number of citations (three and two, respectively), suggesting that they have a supporting function in this discipline. The significance of field-specific publications, such as the Australasian Journal of Early Childhood, in promoting the discussion on outdoor learning in early childhood education is emphasized by these developments.

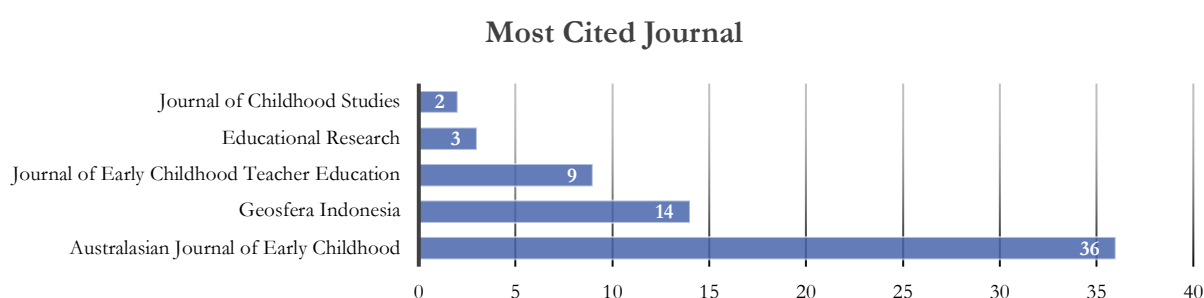


Figure 3. Most Cited Journal

Most Cited Articles

The findings indicate that the 2015 publication titled "Young Children's Perspectives of Outdoor Learning Spaces" holds the highest level of influence. The paper titled "What Matters?" published in the Australasian Journal of Early Childhood has received the greatest number of citations, totaling 36. This highlights its significant influence on understanding children's interactions with external environments. The 2019 article titled "The Compatibility of Outdoor Study Application of Environmental Subject Using Psychological Theories of Intelligence and Meaningful Learning in Senior High School" by Geosfera Indonesia provides unique multidisciplinary insights. The article is supported by 14 citations. Nevertheless, its emphasis on older pupils may restrict its applicability to early childhood education. The 2020 article titled "Balancing Technology and Outdoor Learning" from the Journal of Early Childhood Teacher Education has garnered nine citations, indicating a significant level of interest in the convergence of technology and outdoor education. The essay titled "Outdoor Learning in Early Childhood Education," published in 2023, is a recent addition to the realm of educational research. The 2023 Educational Research article titled "Outdoor Learning in Early Childhood Education" and the 2021 Journal of Childhood Studies piece titled "Caring In-Between" are contemporary examples of scholarly works that examine the advantages and difficulties associated with outdoor learning. The "Events of Engagement of Preschool Children and Forests" (2 citations) are exerting an influence on the field, with the former examining wider advantages and difficulties, while the latter concentrates on the interactive involvement with nature. The citation patterns emphasize the prominent position of the Australasian Journal of Early Childhood, while also acknowledging the many contributions made by other publications in relation to certain areas of outdoor activities.

Table 1. Most cited articles

No.	Article	Journal	Year	Citation
1	Young Children's Perspectives of Outdoor Learning Spaces: What Matters?	Australasian Journal of Early Childhood	2015	36
2	The Compatibility of Outdoor Study Application of Environmental Subject Using Psychological Theories of Intelligence and Meaningful Learning in Senior High School	Geosfera Indonesia	2019	14
3	Balancing technology and outdoor learning: Implications for early childhood teacher educators	Journal of Early Childhood Teacher Education	2022	9
4	Outdoor learning in early childhood education: exploring benefits and challenges	Educational Research	2024	3
5	Caring In-Between: Events of Engagement of Preschool Children and Forests	Journal of Childhood Studies	2021	2

Co-Authorship Analysis

The co-authorship network map of research on outdoor learning activities in early childhood education reveals a cohesive group of scholars who engage in regular collaboration, suggesting a strong and cohesive research community. Lim Seong Pek is recognized as a prominent individual in this network, having the highest number of connections, which suggests that they play a crucial role in the field. Nabilah Abd Talib plays a vital part in several collaborations with other important scholars, such as Khairul Firdaus Ne'Matullah, Satoria Amiruddin, Rosli Ismail, and Rita Wong Mee. The extensive interconnectivity among these individuals signifies the existence of a firmly established research cluster, characterized by a prevailing culture of collaboration. This is expected to lead to the creation of extensive and diverse research on outdoor learning in early childhood education.

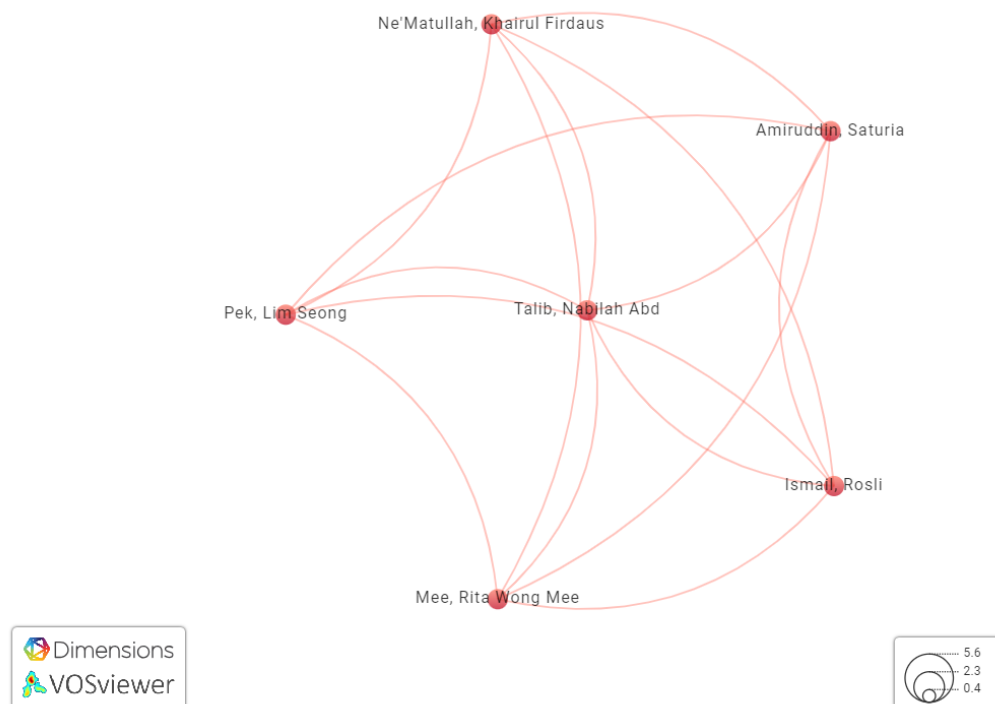


Figure 4. Co-Authorship Analysis

The robust interconnectivity within this network suggests that research in this field is primarily propelled by collaborative endeavors, facilitating the exchange of knowledge, resources, and skills. A specialized organization such as this has the potential to greatly enhance the profession by conducting groundbreaking and thorough investigations. Nevertheless, the clustering of partnerships within this limited group may also restrict the variety of viewpoints and methodologies. In order to enhance the field, it would be advantageous to broaden the network to encompass a more diverse group of researchers, who might provide innovative ideas and assist in exploring novel aspects of outdoor learning in early childhood education.

4. Discussion

The bibliometric analysis of outdoor learning in early childhood education underscores several significant trends, benefits, and challenges that are shaping this burgeoning field. The increasing scholarly attention to outdoor learning, as evidenced by the rising number of publications, reflects a growing recognition of its multifaceted benefits for young children, including contributions to physical health, cognitive development, social skills, and emotional well-being (Chawla, 2015; Tandon et al., 2019). This trend aligns with the broader movement towards nature-based learning, which emphasizes the transformative potential of the natural environment as a learning space (Kiviranta et al., 2024a).

The marked increase in research output, particularly in recent years, suggests that the educational community is increasingly acknowledging the value of outdoor learning as a critical component of early childhood education (Haenilah et al., 2021; Ritonga et al., 2023). However, the earlier fluctuations in publication trends indicate that the field is still developing, with periodic dips suggesting ongoing challenges in sustaining research momentum. These challenges may be attributed to factors such as resource limitations, environmental constraints, and varying educator perceptions, particularly in diverse contexts like Indonesia.

The co-authorship network analysis reveals a closely-knit group of researchers who are driving the discourse on outdoor learning. Figures such as Lim Seong Pek and Nabilah Abd Talib are central to this network, suggesting that these individuals play a pivotal role in advancing research and fostering collaboration within the field. This strong interconnectedness highlights the benefits of collaboration in generating comprehensive and innovative research, which is crucial for addressing the challenges associated with outdoor learning (Mårtensson et al., 2009). However, the concentration of research within a small group of authors also points to a potential challenge: the risk of limited diversity in research perspectives. Expanding this network to include a broader range of voices, particularly from underrepresented regions such as Indonesia, could enhance the richness of the research and help address diverse educational needs.

The analysis of the most cited journals and articles offers insights into the impact and influence of specific research within the field. The Australasian Journal of Early Childhood stands out as the most cited journal, indicating its central role in disseminating influential research on outdoor learning. Highly cited articles such as "Young Children's Perspectives of Outdoor Learning Spaces: What Matters?" by Merewether (2015) emphasize the importance of understanding outdoor environments from the child's perspective, which is crucial for designing effective learning spaces. Other impactful studies, such as those published in *Geosfera Indonesia* (Harianto et al., 2019) and the *Journal of Early Childhood Teacher Education* (Siskind et al., 2022), highlight the interdisciplinary nature of outdoor learning research, integrating psychological theories and innovative educational models to enhance the learning experience (Olliff-Cooper et al., 2021).

Despite these benefits, the analysis also reveals persistent challenges in the field. The relatively lower citation counts for articles published in broader educational journals, like *Educational Research*

(Kiviranta et al., 2024) and the *Journal of Childhood Studies* (Vladimirova, 2021), suggest that outdoor learning, while gaining traction, still faces hurdles in being fully recognized and integrated within the broader educational discourse. This is particularly evident in diverse educational contexts such as Indonesia, where the implementation of outdoor learning is often impeded by resource limitations, environmental constraints, and varying educator perceptions (Haenilah et al., 2021; Ritonga et al., 2023).

In conclusion, the bibliometric analysis provides a comprehensive view of the research landscape on outdoor learning in early childhood education, highlighting both the significant benefits and the challenges associated with its implementation. The findings suggest that while outdoor learning is increasingly recognized for its contributions to child development, there remains a need for greater collaboration, more diverse research perspectives, and stronger integration into broader educational practices. Addressing these challenges, particularly in resource-constrained settings like Indonesia, will be essential for realizing the full potential of outdoor learning in early childhood education. By continuing to build on the growing body of research and fostering inclusive collaboration, the educational community can better support the holistic development of young children through outdoor learning, ultimately leading to more effective and enriched educational experiences (Chawla, 2015).

5. Conclusion and Recommendation

The bibliometric analysis of outdoor learning in early childhood education conducted in this study demonstrates the growing importance of this topic and the changing characteristics of research in this domain. The consistent rise in publications, especially in recent years, indicates the increasing recognition of outdoor learning's crucial contribution to the physical, cognitive, social, and emotional development of young children. Nevertheless, the research also reveals certain crucial deficiencies that must be resolved in order to fully use the potential of outdoor learning in a wide range of educational settings.

An important deficiency is the limited distribution of research among a very small number of researchers, as evidenced by the examination of the co-authorship network. Although the core group has made notable contributions to the discipline, it is crucial to expand the research community by including a greater range of perspectives, especially from underrepresented places such as Indonesia. Increasing the size of the network might bring in new viewpoints and creative methods, which are crucial for tackling the distinct difficulties encountered in various educational environments.

There is a notable lack of integration of outdoor learning in the wider educational conversation, which is evident from the comparatively smaller number of citations for relevant works in prominent educational journals. This indicates that although outdoor learning is acknowledged among some groups, it has not yet achieved general recognition or been completely integrated into mainstream early childhood education methods. Future research should strive to connect outdoor learning more closely with other educational ideas and practices, so improving its relevance and practicality. Moreover, the study emphasizes the necessity for further research that explicitly focuses on the practical difficulties of implementing outdoor learning, especially in areas with limited resources. Research that prioritizes addressing obstacles such as limited resources, environmental limits, and differing educator perspectives is essential to successfully incorporating outdoor learning into early childhood education in a wide range of environments.

To summarize, it is crucial to solve the highlighted shortcomings in order to further progress the burgeoning and recognized area of outdoor learning in early childhood education. To fully unlock the potential of outdoor learning, it is crucial to enhance research collaboration, incorporate outdoor

learning into wider educational frameworks, and address the practical problems associated with its implementation. By addressing these deficiencies, future research can enhance support for the creation of successful, inclusive, and richer educational experiences for early children, ultimately resulting in more comprehensive and influential educational practices.

References

- Bento, G., & Dias, G. (2017). The importance of outdoor play for young children's healthy development. *Porto Biomedical Journal*, 2(5), 157–160. <https://doi.org/10.1016/j.pbj.2017.03.003>
- Bilton, H. (2010). *Outdoor Learning in the Early Years. Management and innovation. London: Routledge Taylor and Francis Group.*
- Chawla, L. (2015). Benefits of Nature Contact for Children. *Journal of Planning Literature*, 30(4), 433–452. <https://doi.org/10.1177/0885412215595441>
- Coelho, L., Torres, N., Fernandes, C., & Santos, A. J. (2017). Quality of play, social acceptance and reciprocal friendship in preschool children. *European Early Childhood Education Research Journal*, 25(6), 812–823. <https://doi.org/10.1080/1350293X.2017.1380879>
- Dahlberg, G., Moss, P., & Pence, A. (2007). Beyond quality in early childhood education and care: Languages of evaluation: Second edition. In *Beyond Quality in Early Childhood Education and Care: Languages of Evaluation: Second Edition.* Routledge Taylor & Francis Group. <https://doi.org/10.4324/9780203966150>
- Fjørtoft, I. (2001). The natural environment as a playground for children: The impact of outdoor play activities in pre-primary school children. *Early Childhood Education Journal*, 29(2), 111–117. <https://doi.org/10.1023/A:1012576913074>
- Gill, T. (2014). The Benefits of Children's Engagement with Nature: A Systematic Literature Review. In *Children, Youth and Environments* (Vol. 24, Issue 2). <http://www.jstor.org/action/showPublication?journalCode=chilyoutenvi>.
- Ginsburg, K. R., Shifrin, D. L., Broughton, D. D., Dreyer, B. P., Milteer, R. M., Mulligan, D. A., Nelson, K. G., Altmann, T. R., Brody, M., Shuffett, M. L., Wilcox, B., Kolbaba, C., Noland, V. L., Tharp, M., Coleman, W. L., Earls, M. F., Goldson, E., Hausman, C. L., Siegel, B. S., ... Smith, K. (2007). The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *American Academy Of Pediatrics*, 119(1), 182–191. <https://doi.org/10.1542/peds.2006-2697>
- Haenilah, E. Y., Yanzi, H., & Drupadi, R. (2021). The Effect of the Scientific Approach-Based Learning on Problem Solving Skills in Early Childhood: Preliminary Study. *International Journal of Instruction*, 14(2), 289–304. <https://doi.org/10.29333/iji.2021.14217a>
- Hariato, E., Nursalam, L. O., Ikhsan, F. A., Zakaria, Z., Damhuri, D., & Sejati, A. E. (2019a). The compatibility of outdoor study application of environmental subject using psychological theories of intelligence and meaningful learning in senior high school. *Geosfera Indonesia*, 4(2), 201. <https://doi.org/10.19184/geosi.v4i2.9903>
- Hariato, E., Nursalam, L. O., Ikhsan, F. A., Zakaria, Z., Damhuri, D., & Sejati, A. E. (2019b). The compatibility of outdoor study application of environmental subject using psychological theories of intelligence and meaningful learning in senior high school. *Geosfera Indonesia*, 4(2), 201. <https://doi.org/10.19184/geosi.v4i2.9903>
- Hu, B. Y., Li, K., De Marco, A., & Chen, Y. (2015). Examining the Quality of Outdoor Play in Chinese Kindergartens. *International Journal of Early Childhood*, 47(1), 53–77. <https://doi.org/10.1007/s13158-014-0114-9>
- Kernan, M., & Devine, D. (2010). 'Being confined within?' Constructions of a 'good' childhood and outdoor play in early childhood education and care settings in Ireland. *Children and Society*, 24(5), 371–385.
- Kiviranta, L., Lindfors, E., Rönkkö, M. L., & Luukka, E. (2024a). Outdoor learning in early childhood education: exploring benefits and challenges. In *Educational Research* (Vol. 66, Issue 1, pp. 102–119). Routledge. <https://doi.org/10.1080/00131881.2023.2285762>

- Kiviranta, L., Lindfors, E., Rönkkö, M.-L., & Luukka, E. (2024b). Outdoor learning in early childhood education: exploring benefits and challenges. *Educational Research*, 66(1), 102–119. <https://doi.org/10.1080/00131881.2023.2285762>
- Leggett, N., & Newman, L. (2017). Play: Challenging educators' beliefs about play in the indoor and outdoor environment. *Australasian Journal of Early Childhood*, 42(1), 24–32. <https://doi.org/10.23965/AJEC.42.1.03>
- Mårtensson, F., Boldemann, C., Söderström, M., Blenow, M., Englund, J. E., & Grahn, P. (2009). Outdoor environmental assessment of attention promoting settings for preschool children. *Health and Place*, 15(4), 1149–1157. <https://doi.org/10.1016/j.healthplace.2009.07.002>
- Maynard, T., & Waters, J. (2007). Learning in the outdoor environment: A missed opportunity? *Early Years*, 27(3), 255–265. <https://doi.org/10.1080/09575140701594400>
- Merewether, J. (2015a). Young Children's Perspectives of Outdoor Learning Spaces: What Matters? *Australasian Journal of Early Childhood*, 40(1), 99–108. <https://doi.org/10.1177/183693911504000113>
- Merewether, J. (2015b). Young children's perspectives of outdoor learning spaces: What matters? *Australasian Journal of Early Childhood*, 40(1), 99–108.
- Munroe, E., & Mansell, A. M. (2016). Outdoor Play Experiences for Young First Nation Children in Nova Scotia: Examining the Barriers and Considering Some Solutions. *Journal of Childhood Studies*, 38(2), 25–33.
- National Development Planning Agency. (2013). *Early Childhood Development Strategy Study in Indonesia*.
- Norðdahl, K., & Jóhannesson, I. Á. (2016). 'Let's go outside': Icelandic teachers' views of using the outdoors. *Education*, 44(4), 391–406. <https://doi.org/10.1080/03004279.2014.961946>
- Olliff-Cooper, K., Raymond, T., Lawler, C., & Stables, K. (2021). Designerly Play and the Mud Pool Using Designerly Play as a Lens to View Young Children Experiencing Forest School. *Technology Education in Early Childhood*, 28(2), 166–172.
- Ritonga, M., Hakim, R., Nurdianto, T., & Ritonga, A. W. (2023). Learning for early childhood using the IcanDO platform: Breakthroughs for golden age education in Arabic learning. *Education and Information Technologies*, 28(7), 9171–9188. <https://doi.org/10.1007/s10639-022-11575-7>
- Siskind, D., Conlin, D., Hestenes, L., Kim, S. A., Barnes, A., & Yaya-Bryson, D. (2022a). Balancing technology and outdoor learning: Implications for early childhood teacher educators. In *Journal of Early Childhood Teacher Education* (Vol. 43, Issue 3, pp. 389–405). Routledge. <https://doi.org/10.1080/10901027.2020.1859024>
- Siskind, D., Conlin, D., Hestenes, L., Kim, S.-A., Barnes, A., & Yaya-Bryson, D. (2022b). Balancing technology and outdoor learning: Implications for early childhood teacher educators. *Journal of Early Childhood Teacher Education*, 43(3), 389–405. <https://doi.org/10.1080/10901027.2020.1859024>
- Tandon, P. S., Downing, K. L., Saelens, B. E., & Christakis, D. A. (2019). Two approaches to increase physical activity for preschool children in child care centers: A matched-pair cluster-randomized trial. *International Journal of Environmental Research and Public Health*, 16(20). <https://doi.org/10.3390/ijerph16204020>
- Vladimirova, A. (2021a). Caring In-Between: Events of Engagement of Preschool Children and Forests. *Journal of Childhood Studies*, 51–71. <https://doi.org/10.18357/jcs00202119326>
- Vladimirova, A. (2021b). Caring In-Between: Events of Engagement of Preschool Children and Forests. *JOURNAL OF CHILDHOOD STUDIES*, 46, 51–71.
- Wang, Y., Lai, N., Zuo, J., Chen, G., & Du, H. (2016). Characteristics and trends of research on waste-to-energy incineration: A bibliometric analysis, 1999–2015. *Renewable and Sustainable Energy Reviews*, 66, 95–104. <https://doi.org/10.1016/J.RSER.2016.07.006>
- World Bank. (2023). *Assessment of Indonesia's Early Childhood Education and Development Accreditation Process Rights and Permissions Country Context*. Retrieved on August 23rd 2024 in <https://documents1.worldbank.org/curated/en/099010924231557084/pdf/P1748151e06d8d0681b1cb1f0b0e1b73966.pdf>. www.worldbank.org

Yildiz, K., Eroglu, Y., & Besikci, T. (2022). A Bibliometric Analysis of Outdoor Education. *Revista Romaneasca Pentru Educatie Multidimensionala*, 14(1Sup1), 275–288.
<https://doi.org/10.18662/rrem/14.1sup1/550>