

Proceeding International Conference on Islamic Education
“Strengthening Educational Institutions in Advancing The Moderate, Inclusive, and Disability-
Friendly Islamic Education”
Faculty of Tarbiyah and Teaching Training
Universitas Islam Negeri (UIN) Maulana Malik Ibrahim Malang
November 10th, 2023
P-ISSN 2477-3638 / E-ISSN 2613-9804
Volume: 8 Year 2023

NAVIGATING THE FUTURE OF NATURE SCHOOLS: TRENDS, PROSPECTS, AND HURDLES

Rahma Diani^{*1}, Nirva Diana², Antomi Saregar³, Fredi Ganda Putra⁴, Megawati Ridwan Fitri⁵

Universitas Islam Negeri Raden Intan Lampung, Indonesia

E-mail: rahmadiani@radenintan.ac.id, nirvadiana@radenintan.ac.id
antomisaregar@radenintan.ac.id, fredigpsw@radenintan.ac.id,
megawatiridwanfitri@radenintan.ac.id

Abstract. The development of the learning concept is not always discussed in the classroom. The application of this concept can be found in the nature school. This study aimed to find out the trends, opportunities, and challenges of the nature school. The research method employed was a systematic literature review with steps referring to the Durst & Edvardsson 2012 guidelines. The Scopus database in the last five years was used as the research data with three main keywords: Nature School, Forest School, and Eco-school. The search found 25 articles that matched the topic of the nature school, which were then analyzed. The results showed that the themes raised in the 25 articles positively impacted students, green environmental issues, teacher leadership in nature schools, and nature school practices. The research themes rarely discussed were teacher leadership and the issue of the nature school environment. This gap served as an excellent opportunity for researchers to research the themes.

Keywords: *eco-school; forest school; nature school; systematic literature review*

A. INTRODUCTION

In recent years, the concept of the nature school has grown and is in great demand (Cudworth & Lumber, 2021). Even in various countries, many nature schools have been established, such as in Iran (Burns & Manouchehri, 2021), England (Cudworth & Lumber, 2021; Harris, 2018; Whincup et al., 2021), Turkey (Bal & Kaya, 2020), Australia (Cumming & Nash, 2015), Indonesia (Nurlaili et al., 2020; Salimi et al., 2021; Setiawati et al., 2019), Finland (Jeronen et al., 2009), Canada (Boileau & Dabaja, 2020), Norway (Alme & Reime, 2021) Scotland (O'Brien, 2009) and many other countries. This fact proves that nature schools have not only developed in several countries but have become a global educational trend.

The development of nature schools as a learning trend does not always have to be done in the classroom (Sen et al., 2021). The learning can be done outdoors (Dabaja, 2021). This learning condition can positively impact students (Harris, 2018). Nature schools can also overcome concerns about children's lack of connection to the natural environment (Kemp, 2020). Therefore, it is hoped that there will be good impacts that arise from the nature school program.

Nature-based alternative schools differ greatly from formal schools (Harjanti et al., 2019). The uniqueness of the Nature school compared to conventional schools is in the visual-spatial, kinesthetic, and naturalist elements. However, it does not mean that nature schools do not have a competency curriculum. Nature-based alternative schools hold positive values to foster independence early on, open creative awareness as widely as possible, and provide learning

cooperation (Hidayatul Mufidah, 2015). Teaching and learning activities in nature schools can raise awareness in children that learning is a fun activity (Yunansah et al., 2020). Learning in the open will instinctively create a pleasant atmosphere without pressure and far from boredom (Sagala et al., 2019). This way, children's awareness will grow that learning is an exciting activity, and school will become synonymous with joy. Besides, students understanding of learning materials will be integrative, comprehensive, and applicable (Bal & Kaya, 2020).

Nature is a source of knowledge and functions as a learning space, media, teaching materials, and learning objects (Rahmi & Salim, 2017). The concept of learning at the nature school applies to learn by doing system, where students are invited to go directly to see things related to the subject matter (Ilma Fitriya Hidayati, 2016). Students are free to explore natural materials available at the school, such as plants, animals, and so on (Hidayatul Mufidah, 2015). The learning process in nature schools refers to active learning methods. The active learning method is carried out by creating a different classroom atmosphere from schools in general. Thus, students are more active in learning by discussing, expressing opinions, and increasing interaction with teachers and peers (Sigalov, 2010). According to Vygotsky (1978), learning will be more meaningful if it is done through social interaction, making students more active. Besides increasing social interaction, the nature schools learning atmosphere aims to make students directly experience what they learn. It means that the application of learning methods in nature schools is experiential learning (Jeronen et al., 2009).

The nature school allows students to actively participate in experiments, investigations, and problem-solving and develop their understanding through physical and social interactions (Yunansah et al., 2020). The learning process that involves well-prepared outdoor activities can increase students' enthusiasm and awareness of learning. This method, in turn, improves students' long-term mental health (Aronsson et al., 2015). Nature schools offer practical learning by utilizing nature as a means or medium of learning. They allow students to develop their imagination, creativity, critical thinking, independence, and life skills (Coates & Pimlott-Wilson, 2019). According to Dowdell et al. (2011) and Knight (2016), nature schools provide four main benefits, namely (1) developing creativity, collaborative action, problem-solving skills, and cognitive skills; (2) developing physical activity; (3) building good social interconnections, responsibilities, self-confidence, and emotional control; and (4) developing negotiation and diplomacy skills as the cores of social skills.

Previous research shows that students tend to be relaxed and can overcome fear in learning (Harris, 2021). Another study states that the nature school program can be an effective alternative pedagogy for students (Coates & Pimlott-Wilson, 2019). Nature schools affect children's self-confidence, social skills, language and communication, motivation and concentration, physical skills, and knowledge and understanding (O'Brien & Murray, 2007). Students can feel various kinds of positive impacts regarding the nature of schools described in various studies. To find out more about this, conducting a systematic literature review related to nature schools is necessary.

A systematic literature review on the nature school has been discussed previously in research (Garden & Downes, 2021). However, in this study, the systematic review only focused on studies conducted in England. Apart from this research, no other studies discuss a systematic review of nature schools. Moreover, there has been no systematic literature review on the nature school covering studies in more than one country. Therefore, there is very little research on this systematic review. Therefore, this study aims to present a global systematic review of nature schools.

B. METHODS

The method used in this study was a systematic literature review by searching articles on the Scopus database (www.scopus.com). The search process involved several keywords in finding the right article. The keywords used were "nature school," "forest school," and "Eco-school." The steps of research are presented in Figure 1.

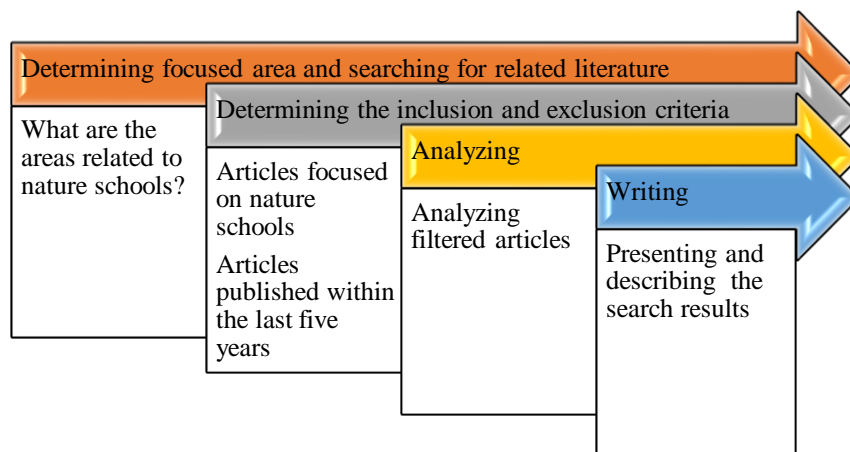


Figure 1. Research Steps Based on the Durst & Edvardsson (2012) Guidelines.

C. RESULT & DISCUSSION

Research on nature schools has been discussed. Based on the search results using the Scopus database within the last five years, the researchers found 9581 articles in the TITLE-ABS-KEY category (nature AND school) and 848 articles in the TITLE-ABS-KEY category (forest AND school), 46 articles in the TITLE-ABS category-KEY category (eco-school). The results were further filtered and found 188 articles in the TITLE category (nature AND school), 77 articles in the TITLE category (forest AND school), and 13 articles in the TITLE category (eco-school). The filtering process was done to find the suitability of which will be discussed about the nature school. The number of articles obtained was 25 articles.

The searched articles were grouped with their respective themes. The first theme was the impact of nature schools on children. Several studies were found in the Scopus database discussing matters related to this theme. Table 1 presents the studies from the search results.

Table 1. Articles on the Impacts of Nature School on Children

No.	Research	Finding
1	(Alme & Reime, 2021)	Education in nature kindergartens creates creativity and social inclusion in children.
2	(Cerino, 2021)	Forest schools provide an ideal environment to maintain independence and improve children's well-being.
3	(Cudworth & Lumber, 2021)	The nature school approach is more than just learning outside the classroom. It is also concerned with potential health, well-being, and pro-environmental outcomes.
4	(Harris, 2021)	Learning in nature allows children to relax, overcome fears, have fun, become one with nature, and develop an interest in locations.
5	(Manner et al., 2021)	The nature school program positively affects students' mood, self-confidence, social skills, and social relationships.

6	(Salimi et al., 2021)	Students have five aspects of social skills in nature schools, including cooperation, affirmation, responsibility, empathy, and self-control.
7	(Tiplady & Menter, 2021)	Forest schools affect the emotional well-being of children and adolescents.
8	(Nurwidodo et al., 2020)	The implementation of the nature school program has a positive impact on students' environmental literacy. There is also a tendency that the higher the students' scores, the better their environmental literacy level.
9	(Coates & Pimlott-Wilson, 2019)	Nature schools contribute to children's social, cognitive, emotional, and physical development through experiential learning by playing.
10	(Harris, 2018)	Outdoor spaces provide opportunities for children and teachers to interact with a more flexible and responsive learning atmosphere.

Besides the impacts on children, several studies also discuss environmental issues. Table 2 contains the obtained research articles.

Table 2. Environmental Issues

No	Research	Findings
1	(Burns & Manouchehri, 2021)	Nature schools show positive aspects, especially in a green environment, and are beneficial for students' personal learning and academic development.
2	(Riastini et al., 2019)	The reputation of the National Eco-School does not guarantee a higher level of waste awareness among students than those from other schools.
3	(Denan et al., 2018)	Recommendations for green school design are presented based on site and building planning, climate, and the application of green technology.

The themes regarding teacher leadership and nature school practices are shown in Tables 3 and 4.

Table 3. Teacher Leadership in Nature schools

No	Research	Findings
1	(Whincup et al., 2021)	This study uncovers ways to convince the general public about the values of nature schools and outdoor learning.
2	(Zala-Mezö et al., 2020)	School leadership strategies seem to align with the quality of change: the more efficient the leadership strategy, the more change can be perceived.

Table 4. Practice and Evaluation of Nature schools

No	Research	Findings
1	(Garden, 2022)	The risks of outdoor learning practices can be overcome.
2	(Harper & Obee, 2021)	Outdoor learning activities potentially risk children (falls and injuries). Teachers should supervise well and be involved in outdoor activities.
3	(López-Alcarria et al., 2021)	This research concerns teacher training practices related to environmental programs to create good environmental literacy.

No	Research	Findings
4	(Bal & Kaya, 2020)	Nature school provides a comprehensive learning environment and directs students to research, discover and learn. It ignites curiosity by presenting a unique learning environment.
5	(Boileau & Dabaja, 2020)	Canadian Nature School programs vary in children's ages, outdoors types, funding sources, and schedules. There are challenges, such as finding suitable outdoor areas, outdoor safety, and lack of support from different stakeholders.
6	(Dzerefos, 2020)	A developed set of indicators was successfully used in the practice of nature schools.
7	(Kemp, 2020)	There is a potential mutually beneficial transformational relationship between the Nature School and the conventional school. However, it can only happen if teaching professionals are given the freedom to adapt the nature school approach to local contexts and needs.
8	(Schröder et al., 2020)	Student participation in eco-school programs can be fostered through activities by adapting to the environment according to their needs and abilities, providing close teacher guidance, and building good student-teacher relationships.
9	(Boeve-de Pauw & Van Petegem, 2018)	Nature school programs give students a pro-environmental nature due to external factors, not their initiative. It also indirectly affects student learning outcomes.
10	(Soeprijanto & Femalia, 2018)	Cikeas Nature School is deeply concerned about environmental issues, character building, and entrepreneurship. The curriculum is in the form of thematic learning.

Nature schools have been widely discussed in several studies. The final search result of 25 articles was noteworthy. However, there was very little description of the nature schools. Most studies employed qualitative methods with interview and survey techniques to collect data. The research tended to be done on a small scale. The themes contained in table 1 are nature schools on students' social skills, nature schools in building a green environment, teacher leadership in nature schools, and nature school practices.

Positive Impacts on Students

Nature schools provide positive benefits for students. Research by (Salimi et al., 2021) reveals that learning outside the classroom affects children's social skills in cooperation, affirmation, responsibility, empathy, and self-control. The five aspects are obtained through social project-based teaching and habituation in daily learning. The supervising teacher should give the children as much freedom as possible. Without many limitations, students' creativity and experimental learning can be stimulated (Alme & Reime, 2021). Besides creativity, the nature of children's independence is also formed by the nature school environment. Open spaces, such as learning outside the classroom, affect students' learning independence because the open environment allows children to make independent choices (Cerino, 2021).

Research by (Cudworth & Lumber, 2021) explains that learning outside the classroom can also increase formal academic knowledge because learning outside the classroom can provide a new learning experience for students. It increases understanding of the learning material being taught. Also, it can improve psychological and social aspects (Howell et al., 2011) and happiness (Richardson et al., 2016). Talking about the psychological aspect, research by (Harris, 2021) reveals that routine

and repetitive activities in nature schools can make children relax, overcome their fear, have fun, connect with nature when they get to know it better, and develop an interest in the location.

According to Ki Hadjar Dewantara, education is not entirely focused on intellectual aspects but must be balanced with other aspects (Mujito, 2014). Nature school goes along with this concept. Learning in nature schools teaches many aspects, such as character values, learning outside of the classroom teaches students to work together, empathize with each other, and so on. The educational values taught in nature schools are very diverse. The emphasis is more on the learning process and student behavior (Mujito, 2014). Learning does a lot of hands-on practice. The nature school values can be taught by doing outbound activities. Outbound activities can train social sensitivity, such as cooperation, tolerance, honesty, leadership, team development, and many others.

Green Environment

Nature schools are considered to create a green environment. Research by (Soeprijanto & Femalia, 2018) reveals a picture of a nature school with a green environment. The school owns a large green area. The classes are in the form of unobstructed huts with high walls. There are outbound locations that can be used weekly by students. The last is the green lab, a place for gardening, farming, and composting. These activities will train students to protect the environment and increase awareness of the importance of a green environment.

The characteristics of nature schools lie in their variety of plants. Nature school becomes a new space to create a healthy environment. Creating a beautiful environment will affect the surrounding individuals, including students. Nature schools are considered effective in creating a relationship between children and nature (Burns & Manouchehri, 2021). This relationship also develops students' personality and academic potential because students are taught to protect the environment and create a sense of care for the environment. This condition affects the formation of students' personalities which also affects their academic potential. The green environment issue is related to the socio-scientific aspect. The context of science and society gives students new knowledge that science is related to the real world. Learning in an open environment will provide students with an understanding of social problems related to scientific concepts.

However, research by (Riastini et al., 2019) reveals something different. Children in nature schools have characteristics that are not much different from those who attend conventional schools regarding waste care. The causes might have been the family, teachers, and themselves. This study provides an opportunity to further examine how these factors affect children.

Teacher Leadership in Nature Schools

Nature schools have a basis that differentiates them from other conventional schools. Nature schools influence the learning process is the most important thing. Meanwhile, conventional schools focus more on targets, assessments, and results. This difference creates a pedagogical ideological conflict between nature schools and conventional schools.

Research by (Whincup et al., 2021) reveals that the nature school principals who do not express their needs should use more flexible approaches. Their problems can be compromised values or the worries of not being liked because they cannot provide real nature schools. Teachers are challenged to implement the nature school and convince the audience that the school is good to implement. Research by (Zala-Mezö et al., 2020) highlighted that strategy is indispensable in nature schools' leadership. This result is in line with the state of nature schools which are different from conventional schools.

There is limited research on this subject. This limitation provides an opportunity to conduct research highlighting how principals carry out their duties in nature schools and the differences between nature and conventional schools.

Nature School Practice

Nature schools' teaching and learning activities are different from most conventional schools. Learning activities are carried out outside the classroom. There are several programs in the nature school. According to research (Boileau & Dabaja, 2020), nature schools in Canada have various programs tailored to the age of students, types of outdoor settings, and others. The programs are varied, including summer camp programs, family programs, youth programs, full-day kindergarten programs, and many others. These programs support the novelty offered by nature schools.

The difference between nature and conventional schools can be felt in the visual-spatial, naturalistic, and kinesthetic elements (Hati, 2017). Learning activities at nature schools are built with a more pleasant feeling because they are carried out in an open environment. Moreover, there is no pressure on learning, which is fun. In conventional schools, the learning process is carried out in the room and sometimes causes a sense of unpleasantness. However, this difference does not mean that nature schools do not have a competency curriculum like conventional schools.

The nature school curriculum has a learner-focused learning approach. Then, the concept of a nature school makes the schoolyard and environment a laboratory and learning media for children to observe their surroundings (Soeprijanto & Femalia, 2018). The practice of the nature school involves a lot of observations. It can be understood that the learning process at the nature school is observing the surrounding environment. This concept is aligned with Bandura's learning theory, which believes that individuals can learn something from what they observe. The nature school presents many learning activities such as outbound, farming, and other activities. From these activities emerge character values that can be observed by students that can provide experience and learning for students.

Nature school learning emphasizes more on student activity. Therefore, nature school is suitable for thematic learning. Thematic learning is done by looking at the process of student activity (Kulsum et al., 2016). Indirectly, the nature school has implemented thematic learning. Various challenges are faced in the practice of nature schools, like finding an open space.

Based on the discussion, research on nature schools is still little explained. Only 25 relevant articles discuss the issue of nature schools. Most studies use research subjects in a small capacity. This weakness can be an opportunity for further research to use research subjects on a larger scale. With larger research subjects, it is hoped that the research data will be more effective and efficient. Apart from the subject of research, other research opportunities are research on the comparison between nature schools and conventional schools.

Discussions on the comparison between nature schools and conventional schools are still very limited. There has been no research on this in the Scopus database. Therefore, there is a great opportunity to conduct such comparative research. Objects that can be compared between nature and conventional schools are technical learning, the environment, the impact on children, and many more. It is hoped that this comparative research can clarify how different nature schools are from conventional schools and what are the advantages that can be obtained from nature schools and conventional schools. Finally, the research can determine which school is more effective for students.

Based on the analyzed articles, another research opportunity relates to teacher leadership in nature schools. This theme is very important to be developed further in research to see the leadership attitude that teachers must have in a nature school environment.

Another possible theme is environmental issues. Knowing the types of nature school buildings that are effective and efficient is very important. However, there are still few articles that discuss this theme. The discussion is still relatively general by just discussing the state of the school environment. It is necessary to research good buildings to be used as nature schools.

D. CONCLUSION

There are 25 articles that have been analyzed about nature schools. The themes raised in the 25 articles are positive impacts on students, green environmental issues, teacher leadership in nature schools, and nature school practices. The research themes that are still very minimally discussed are the theme of teacher leadership and environmental issues.

REFERENCES

- Alme, H., & Reime, M. A. (2021). Nature kindergartens: a space for children's participation. *Journal of Outdoor and Environmental Education*, 24(2), 113–131. <https://doi.org/10.1007/s42322-021-00081-y>
- Bal, E., & Kaya, G. (2020). Investigation of forest school concept by forest school teachers' viewpoints. *International Electronic Journal of Environmental Education*, 10(2), 167–180.
- Boeve-de Pauw, J., & Van Petegem, P. (2018). Eco-school evaluation beyond labels: the impact of environmental policy, didactics and nature at school on student outcomes. *Environmental Education Research*, 24(9), 1250–1267. <https://doi.org/10.1080/13504622.2017.1307327>
- Boileau, E. Y. S., & Dabaja, Z. F. (2020). Forest School practice in Canada: a survey study. *Journal of Outdoor and Environmental Education*, 23(3), 225–240. <https://doi.org/10.1007/s42322-020-00057-4>
- Burns, E. A., & Manouchehri, B. (2021). Reconnecting children with nature: Founding and growth of the nature schools movement in Iran. *Interdisciplinary Journal of Environmental and Science Education*, 17(3). <https://doi.org/10.21601/ijese/10934>
- Cerino, A. (2021). The importance of recognising and promoting independence in young children: the role of the environment and the Danish forest school approach. *Education 3-13*, 1–10. <https://doi.org/10.1080/03004279.2021.2000468>
- Coates, J. K., & Pimlott-Wilson, H. (2019). Learning while playing: Children's Forest School experiences in the UK. *British Educational Research Journal*, 45(1), 21–40. <https://doi.org/10.1002/berj.3491>
- Cudworth, D., & Lumber, R. (2021). The importance of Forest School and the pathways to nature connection. *Journal of Outdoor and Environmental Education*, 24(1), 71–85. <https://doi.org/10.1007/s42322-021-00074-x>
- Cumming, F., & Nash, M. (2015). An Australian perspective of a forest school: shaping a sense of place to support learning. *Journal of Adventure Education and Outdoor Learning*, 15(4), 296–309. <https://doi.org/10.1080/14729679.2015.1010071>
- Dabaja, Z. F. (2021). Reviewing two decades of research on the Forest School impact on children: The sequel. *Education 3-13*, 0(0), 1–14. <https://doi.org/10.1080/03004279.2021.1905019>
- Denan, Z., Mazlan, M. A. H., Majid, N. H. A., & Sanusi, N. A. (2018). DESIGN ANALYSIS TO ACHIEVE GREEN/ECO SCHOOL BUILDING DESIGN TYPOLOGY FOR MALAYSIA. *PLANNING MALAYSIA: Journal of the Malaysian Institute of Planners*, 16(2), 39–49.
- Dzerefos, C. (2020). Reviewing education for sustainable development practices in South African eco-schools. *Environmental Education Research*, 26(11), 1621–1635. <https://doi.org/10.1080/13504622.2020.1809637>
- Garden, A. (2022). The case for space in the co-construction of risk in UK forest schools. *Education 3-13*, 1–12. <https://doi.org/10.1080/03004279.2022.2066148>
- Garden, A., & Downes, G. (2021). A systematic review of forest schools literature in England. *Education 3-13*, 0(0), 1–17. <https://doi.org/10.1080/03004279.2021.1971275>

- Harjanti, R., Supriyati, Y., & Rahayu, W. (2019). Evaluation of Learning Programs at Elementary School Level of "Sekolah Alam Indonesia (SAI)". (Evaluative Research Using Countenance Stake's Model). *American Journal of Educational Research*, 7(2), 125-132. <https://doi.org/10.12691/education-7-2-2>
- Harper, N. J., & Obee, P. (2021). Articulating outdoor risky play in early childhood education: voices of forest and nature school practitioners. *Journal of Adventure Education and Outdoor Learning*, 21(2), 184-194. <https://doi.org/10.1080/14729679.2020.1784766>
- Harris, F. (2018). Outdoor learning spaces: The case of forest school. *Area*, 50(2), 222-231. <https://doi.org/10.1111/area.12360>
- Harris, F. (2021). Developing a relationship with nature and place: the potential role of forest school. *Environmental Education Research*, 27(8), 1214-1228. <https://doi.org/10.1080/13504622.2021.1896679>
- Hati, S. T. (2017). Model Pendidikan Karakter yang Baik di Sekolah Alam. *IjtimaiyahJurnal Ilmu Sosial Dan Budaya*, 1(2), 1-32.
- Hidayatul Mufidah. (2015). Sistem Pembelajaran Matematika Di Sekolah Alam. *Ummul Quro*, 6(Jurnal Ummul Qura Vol VI, No 2, September 2015), 36-47.
- Howell, A. J., Dopko, R. L., Passmore, H.-A., & Buro, K. (2011). Nature connectedness: Associations with well-being and mindfulness. *Personality and Individual Differences*, 51(2), 166-171. <https://doi.org/10.1016/j.paid.2011.03.037>
- Ilma Fitriya Hidayati, T. P. (2016). Pengelolaan Kurikulum Sekolah Alam di TK Alam Al Biruni Cirebon. *Indonesian Journal of Curriculum and Educational Technology Studies*, 4(299), 32-39.
- Jeronen, E., Jeronen, J., & Raustia, H. (2009). Environmental education in Finland - A case study of environmental education in nature schools. *International Journal of Environmental and Science Education*, 4(1), 1-23.
- Kemp, N. (2020). Views from the staffroom: forest school in English primary schools. *Journal of Adventure Education and Outdoor Learning*, 20(4), 369-380. <https://doi.org/10.1080/14729679.2019.1697712>
- Kulsum, R. U., Husaini, A., & Saefuddin, D. (2016). Internalisasi Nilai-Nilai Akhlak Melalui Pembelajaran Tematik pada Sekolah Dasar Sekolah Alam Bogor. *Ta'dibuna: Jurnal Pendidikan Islam*, 5(2), 184. <https://doi.org/10.32832/tadibuna.v5i2.590>
- López-Alcarria, A., Poza-Vilches, M., Pozo-Llorente, M., & Gutiérrez-Pérez, J. (2021). Water, Waste Material, and Energy as Key Dimensions of Sustainable Management of Early Childhood Eco-Schools: An Environmental Literacy Model Based on Teachers Action-Competencies (ELTAC). *Water*, 13(2), 145. <https://doi.org/10.3390/w13020145>
- Manner, J., Doi, L., & Laird, Y. (2021). 'That's given me a bit more hope' - adolescent girls' experiences of Forest School. *Children's Geographies*, 19(4), 432-445. <https://doi.org/10.1080/14733285.2020.1811955>
- Mujito, W. E. (2014). Konsep Belajar Menurut Ki Hadjar Dewantara dan Relevansinya dengan Pendidikan Agama Islam. *Pendidikan Agama Islam*, 11(1), 65-77.
- Nurlaili, S., Sapriya, & Priscylio, G. (2020). Eco-literacy-textbook: Instructional need to improve students' environmental awareness in a primary nature school. *Journal of Physics: Conference Series*, 1567(4). <https://doi.org/10.1088/1742-6596/1567/4/042060>
- Nurwidodo, N., Amin, M., Ibrohim, I., & Sueb, S. (2020). The Role of Eco-School Program (Adiwiyata) towards Environmental Literacy of High School Students. *European Journal of Educational Research*, 9(3), 1089-1103. <https://doi.org/10.12973/eu-jer.9.3.1089>
- O'Brien, L. (2009). Learning outdoors: The forest school approach. *Education 3-13*, 37(1), 45-60. <https://doi.org/10.1080/03004270802291798>
- O'Brien, L., & Murray, R. (2007). Forest School and its impacts on young children: Case studies in Britain. *Urban Forestry and Urban Greening*, 6(4), 249-265. <https://doi.org/10.1016/j.ufug.2007.03.006>
- Rahmi, R., & Salim, R. M. A. (2017). Peran Pelibatan Diri Siswa Sebagai Mediator Dalam Hubungan Antara Iklim Kelas Dengan Sikap Kreatif Siswa Sd Sekolah Alam. *Jurnal Psikologi Undip*, 16(1), 77. <https://doi.org/10.14710/jpu.16.1.77-87>
- Riastini, P. N., Wati, C. S., Prodjosantoso, A. K., & Suryadarma, I. (2019). Is There any Difference in

- Waste Consciousness between National Eco-Schools and Others? *International Journal of Instruction*, 12(4), 513–528. <https://doi.org/10.29333/iji.2019.12433a>
- Richardson, M., McEwan, K., Maratos, F., & Sheffield, D. (2016). Joy and Calm: How an Evolutionary Functional Model of Affect Regulation Informs Positive Emotions in Nature. *Evolutionary Psychological Science*, 2(4), 308–320. <https://doi.org/10.1007/s40806-016-0065-5>
- Sagala, R., Nuangchalerm, P., Saregar, A., & El Islami, R. A. Z. (2019). Environment-Friendly Education as A Solution to Against Global Warming: A Case Study at Sekolah Alam Lampung, Indonesia. *Journal for the Education of Gifted Young Scientists*, 7(2), 87–97. <https://doi.org/10.17478/jegys.565454>
- Salimi, M., Dardiri, A., & Sujarwo. (2021). The profile of students' social skills of Bengawan Solo elementary nature school. *European Journal of Educational Research*, 10(1), 211–226. <https://doi.org/10.12973/EU-JER.10.1.211>
- Schröder, L.-M. U., Wals, A. E. J., & van Koppen, C. S. A. (Kris). (2020). Analysing the state of student participation in two Eco-Schools using Engeström's Second Generation Activity Systems Model. *Environmental Education Research*, 26(8), 1088–1111. <https://doi.org/10.1080/13504622.2020.1779186>
- Sen, A. I., Ertas-Kilic, H., Oktay, O., Ekinci, S., & Kadirhan, Z. (2021). Learning science outside the classroom: development and validation of the out-of-school learning environments perception scale. *Journal of Outdoor and Environmental Education*, 24(1), 19–36. <https://doi.org/10.1007/s42322-020-00070-7>
- Setiawati, N. A., Azhari, I., & Yusnadi. (2019). Nature School Learning Model (Case Study at the School of Universe, Lebak Wangi Village, Parung District, Bogor Regency). *International Journal of Education, Learning and Developmet*, 7(6), 41–51.
- Sigalov, A. B. (2010). The school of nature I. transmembrane signaling. *Self/Nonsel - Immune Recognition and Signaling*, 1(1), 4–39. <https://doi.org/10.4161/self.1.1.10832>
- Soeprijanto, S., & Femalia, G. (2018). *Evaluation of nature school in Indonesia using illuminative evaluation model*. 030005. <https://doi.org/10.1063/1.5061858>
- Tiplady, L. S. E., & Menter, H. (2021). Forest School for wellbeing: an environment in which young people can 'take what they need.' *Journal of Adventure Education and Outdoor Learning*, 21(2), 99–114. <https://doi.org/10.1080/14729679.2020.1730206>
- Whincup, V. A., Allin, L. J., & Greer, J. M. H. (2021). Challenges and pedagogical conflicts for teacher-Forest School leaders implementing Forest School within the UK primary curriculum. *Education 3-13*, 1–12. <https://doi.org/10.1080/03004279.2021.1942948>
- Yunansah, H., Kuswanto, K., & Abdillah, F. (2020). Ekopedagogik: Analisis Pola Pendidikan Di Sekolah Alam Bandung. *EduHumaniora | Jurnal Pendidikan Dasar Kampus Cibiru*, 12(2), 115–124. <https://doi.org/10.17509/eh.v12i2.20597>
- Zala-Mezö, E., Bormann, I., Strauss, N.-C., & Müller-Kuhn, D. (2020). Distributed Leadership Practice in Swiss "Eco-Schools" and Its Influence on School Improvement. *Leadership and Policy in Schools*, 19(4), 673–695. <https://doi.org/10.1080/15700763.2019.1631855>