



Geep GLOBAL ENVIRONMENTAL EDUCATION PARTNERSHIP

Sharing ideas to create a more just and sustainable future through the power of environmental education

CASE STUDY

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NatureWise: Dutch Children’s Learning In, About, For, and By Nature

The Netherlands

CONTRIBUTOR

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GEEP is a partnership of the U.S. Environmental Protection Agency, the Environmental Protection Administration of Taiwan, and the North American Association for Environmental Education.



NatureWise: Dutch Children’s Learning In, About, For, and By Nature



GOALS KEY

[United Nations Sustainable Development Goals](#) addressed

Overview

This case study describes a Dutch example of a programmed experiential approach to nature-oriented environmental education (EE) and is based on a long-term evaluation (van der Waal, Hovinga, Wals, & van Koppen, 2012).

In the Netherlands, a number of environmental education (EE) programs have been developed to (re)connect primary school children with nature and to stimulate their care for nature by engaging them in outdoor experiences. These programs usually complement nature-oriented in-class lessons. [NatureWise \(Natuurwijs\)](#), supported by the [Dutch Forestry Service \(Staatsbosbeheer\)](#) and the [NatureCollege Foundation \(NatuurCollege\)](#), is one program that is known for its experiential design and its careful linking of outdoor learning and school-based learning.

This case study illustrates how:

- Collaborative efforts between teachers and park rangers helped to address both the specific needs of students and compulsory educational targets
- Targeting multiple experiential domains offered opportunities for students to discover nature in their own ways and at their own pace
- School location and pedagogical climate appeared to play a role in the impacts of the NatureWise program and other nature-oriented environmental education approaches
- The roles of adults—including teachers, park rangers, and parents/caregivers—appeared to influence the impacts of nature-oriented environmental education for children



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Background



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There is a renewed interest in The Netherlands— and elsewhere—in the provision of educational experiences that can help children connect with the natural world.

This interest is often fuelled by an increased concern about how the rapid rise of digitally-mediated interaction may be contributing to declines in young people’s health (e.g., the rise of obesity in many parts of the world), in their understanding of how nature works, and in their ability to concentrate and engage in deep thinking.

Around the globe, a number of school-based programs are immersing children in nature-oriented experiences in near (e.g., on school grounds) and not so near places (e.g., in natural areas driving distance away from the school). The programmes vary in: a) intensity, from once a year to periodically throughout the year; b) educational approach, from more cognitively-oriented to more whole person-oriented; c) didactical orientation, from show-and-tell modes of instruction to more free flowing experiential and discovery-based approaches, and d) the role of outside experts, from low to high involvement of outside expertise.

Most Dutch primary schools presently allocate limited time to both nature-oriented and experience-oriented education, mainly because of pressure to increase standardized test scores in reading, writing, general sciences, and arithmetic. In some cases, nature-oriented education may consist of only 30 minutes weekly of a school television program called “News from Natural World.” To increase opportunities for nature-oriented education in schools, a coalition comprised of the [Dutch Forestry Service \(Staatsbosbeheer\)](#), the [Utrecht University](#) (Professor Kerst Boersma), and [NatuurCollege Foundation](#) developed NatureWise in 2006. The Dutch Forestry Service, NatuurCollege, and [Wageningen University](#) oversee the sustainability of NatureWise. The NatuurCollege Foundation oversees the implementation and development. Approximately 5,500 primary school children (ages 4-12) from 80 schools participated in NatuurWise in 2015.

Approach

The NatureWise program is based on the primary school curriculum for nature education.

Every NatureWise program is unique and tailored to fit the needs of the teacher and the pupils and the compulsory targets (kerndoelen) set by the [Dutch Ministry of Education, Culture, and Science](#). The park ranger/[NatureWiser](#)—the guides that go outdoors with the children—develops the program together with the teacher.

The children are given time to explore and experience nature at their own pace. Their discoveries come from their own curiosity about what they see, smell, hear, touch, and feel. All senses are stimulated with various activities, such as feeling trees blindfolded, making nature-art constructions, or writing a short poem on something in nature that touches their hearts. The children may also help the park ranger with his or her work, such as cleaning out ponds or weeding out small pine trees in heather beds.

The NatureWise formula is referred to as the 3x3x3 approach:

- **Three days** throughout the year, NatureWise takes school classes outdoors with an official State Forestry ranger. The three days are planned in three different seasons of the year, and are linked by a central theme (e.g., biodiversity). This theme is elaborated in three different day programs. Each day has specific learning goals that are connected to the school curriculum. The program follows the didactics theory of Concept-Context learning.
- **Three experiential domains**—heart, head, and hands—are utilized to enable children to discover natural areas.



Head: Children learn facts on nature through self-discovery and activities.

Hands: Children help the park ranger actively with his work.

Heart: Children are given time, quiet moments for themselves, to relax and experience nature in their own way.

- **Three chronological phases** characterize the program design: school-based preparatory lessons, the outdoor experience, and school-based reflection. During the preparatory lessons in the classroom, the children engage with the theme that will be addressed through the outdoor experience in nature. This allows more time on the day itself to allow the children to explore nature in their own way and in their own tempo. During the school-based reflection, children are given an assignment related to the theme and their outdoor experience. This helps to consolidate the experience and improve learning.

Evaluation Plan

Schools themselves, along with the Forest Rangers, evaluate each program component using arts-based and language-based tools, both verbalized and written.

For example, the children make art works from nature materials they find lying on the ground, write short essays on what they experience, and write poems about their observations in nature. The use of these tools stimulates all children to participate in the activities, since children have different forms of intelligence (Gardner) and learn in different ways. Using these tools seeks to ensure that the NatureWise program has positive outcomes for all children.

Participating teachers complete a digital evaluation form after the program. They are asked to score how they experienced the different components of the program, as well as how they experienced collaborating with the park ranger/ NatureWiser guide. Teachers are also asked for tips to improve the program.

In addition, researchers conducted a multi-year study to examine how NatureWise appeared to influence a subset of participating 8 to 10-year-old children (n=185) over time (van der waal et al., 2012). The study took place across six primary schools: three from urban areas and three from more rural areas. In each school, for each participating grade, the researchers studied a class that participated in NatureWise. Simultaneously, they studied control classes that did not participate in the NatureWise program, but followed the normal nature education program typical for most Dutch primary schools. Participating classes were observed periodically during lessons about nature, and children's concept maps and activity booklets (in Year 1 and Year 3 of the study) were analyzed. Participating teachers (n=24) and eight focus children from each participating class were also interviewed. Teachers were asked to discuss their understanding of nature education and NatureWise. The researchers also asked teachers about changes they observed in the children, as well as their ideas about the influence of the children's home-situations on their exposure to and connection with nature.



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Outcomes

Studies examining the impact of NatureWise for participating children (e.g., van der Waal et al., 2012) have suggested that, in comparison with their peers, NatureWise participants:

- Were better positioned to **establish direct contact with nature**,
- **Gained more confidence** and interest in nature, which helps them understand information about nature that comes to them through the media,
- Were better positioned to **develop empathy** towards other species,
- Came to see the **importance of caring for nature**, having had hands-on opportunities to care for nature,
- Had opportunities to enjoy being in nature aesthetically, psycho-motorically, and intellectually.

All these effects combined appear to make children more inclined to actively seek nature.

Furthermore the researchers found that:

- Children in strongly urbanized areas seemed more surprised when exposed to NatureWise activities; children in rural areas seemed more familiar with NatureWise activities and could occasionally show boredom.
- Children in strongly urbanized areas seemed more interested in—and showed more involvement with—environmental issues or the “problem-driven” side of nature; children in rural areas seemed to react less from a societal point of view.
- When children are asked to define or describe nature, children primarily referred to nature they are accustomed to in daily life (i.e., not exotic nature as shown in many television programs or exotic zoo animals).
- The richer and closer nature is in daily life, the more children could speak about nature in different ways, sympathize with, and ‘naturally understand’ nature.

Participation in NatureWise also resulted in a number of positive effects among the teachers, especially among those who: 1) already had some affinity with nature and nature education, 2) were open to nature education from a professional development perspective, and/or 3) were part of a school characterized by a positive pedagogical climate emphasizing continuous improvement. Where these conditions (or a subset thereof) existed, teachers appeared to view their pupils differently: they discovered qualities that they failed to see before, or only moderately recognized, in a regular classroom setting.

In addition, teachers came to appreciate the value of emotions, the affective domain, and using all the senses—both for children’s personal development, and also for teaching and learning in general. As a result these teachers are better positioned to see the educational potential of the green outdoors, even in highly urbanized areas, and seem more capable in connecting learning outside school with learning inside school. Another spin-off effect concerns the children’s parents. The anecdotes and narratives provided by both the teachers and the pupils suggest that NatureWise, at least in some instances, also positively influences the parents when the outdoor experiences are shared at home.

Lessons Learned

Examinations of the NatureWise program have suggested that a number of key findings related to factors influencing the program's impacts (van der Waal et al., 2012)



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- **Geographic location of the school played** NatureWise appeared to have more impact on children growing up in city environments.
- **The pedagogical climate at school.** NatureWise appeared to have more impact when there was space for experiential and discovery-based learning, but also when a school dared to abandon the standard curriculum at times.
- **The teacher's attitude towards nature and nature education.** NatureWise had more impact when a teacher showed a positive attitude towards biology, nature, and the outdoors.
- **The qualities of the outdoor guide.** NatureWise had more impact when the outdoor guide understood the world of a child, and possessed didactical and pedagogical qualities.
- **The involvement of parents and/or caregivers.** NatureWise had more impact when the home environment engaged with the children's experiences.

When all or a subset of these factors worked in a positive direction, the researchers found that positive impacts of nature education were more likely to occur, even for children who did not participate specifically in the NatureWise program.

At the same time, when most or all of these factors worked in the other direction, positive impacts were less likely to occur, even for children who did participate in NatureWise. Therefore, in order to maximize the benefits from nature education programs such as NatureWise, programs may benefit from assessing the five factors listed above prior to implementation.

Resources

Online Strategic Documents

- Dutch Forest Service: <https://www.staatsbosbeheer.nl/>
- NatureWise (NatureWijs): <http://www.natuurwijs.nl/>
- NatuurCollege Foundation: <http://natuurcollege.nl/>
- Van der Waal, M.E., Hovinga, Wals, A.E.J en van Koppen, C.S.A. (2012) "Once I started to get to know it better, it became fun": A study of the added-value of an educational nature-immersion programme 'NatureWise' in comparison with standard nature education in Dutch Primary schools. Research Report, Wageningen: Education and Competence Studies, Wageningen University, 116 p. English abstract available via: <https://arjeNatureWiseals.files.wordpress.com/2013/01/toen-ik-er-meer-over-ging-weten-werd-het-leuk-compleet3includabstract.pdf>

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