BIODIVERSITY LOGBOOKS FOR AN ENVIRONMENTAL PEDAGOGY OF CARE

Serena Pollastri, Liz Edwards

Over the past century, botanists and educators have observed a sharp decrease in people’s ability to notice and identify plants in their environment, especially among urban populations in the West. This phenomenon has often been referred to as “Plant Blindness” or “Plant Awareness Disparity”, and is caused by a combination of factors - some of which are related to reduced opportunities for engagement with nature and the increase in the use of digital technology. As progressive disconnection from the environment starts from an early age, early years and primary education play a crucial role in determining people’s connection or disconnection with the natural world around them.

In the UK, the ability to identify and describe plant structures and functions is part of the learning outcomes for the science programme of the National Curriculum for children aged 7-8 years old. While Government guidelines on the implementation of the curriculum do encourage children’s engagement with the natural environment as a relevant learning activity, in practice most of the teaching and learning about plants and their habitats relies heavily on providing worksheets and diagrams. These resources can help students understand key concepts and vocabulary, but also infer a reductive view of the environment when removed from the context they describe. When used in isolation, they also promote a specific positivist epistemology based on naming, defining, and dividing into categories, and dismiss any other form of knowing that do not fit within the provided framework. And despite the official recommendations and teachers’ best efforts, such resources are indeed often used in isolation. In the UK, statutory tests (including SATs at the end of primary school) are used to evaluate not only the students, but also the school they attend. Teachers are increasingly forced to narrow down the scope of the curriculum and adjust it to maximise test scores, to the detriment of explorative, field based, experiential modes of learnings.

The richness and complexity of the botanical world means that plants rarely look exactly like the models that are presented in primary school’s worksheets, and certainly not throughout the year. There is a strong difference between ‘declarative’ knowledge (being able to talk about a topic) and ‘functioning’ knowledge (knowledge that can be put to work). Even students who perform well during the tests, might still lack the skills to engage meaningfully with plants in their environment.

Inspired by contemporary approaches to environmental pedagogies of care, we worked with a primary school in the North West of England to design a programme of activities and a set of tools for learning to notice plants in their environment. The Biodiversity Logbooks project was initially piloted with 44 children aged 7 and 8 years-old, and has since been extended to other schools in the area. A key objective of the project was designing ways to move beyond context-void, ‘worksheet-based’ ways of approaching knowledge about plants, towards experiential education, attentiveness and emotional engagement with place. These are core principles in environmental pedagogies of care, which focus on direct experience of nature and creative place-based interventions aimed at developing attentiveness in children and a sense of care for their surrounding environment.

In this project we designed an intentionally slow activity of environmental data visualisation that required students to spend time outdoors with plants. Each student in the pilot project received a Biodiversity Logbook: a kit which included a logbook with plant and leaf study sheets to collect and describe samples during field explorations, open-source sensors programmed by students in class, and the materials necessary to produce cyanotypes impressions of the plants they collected. Cyanotype is one of the oldest photographic techniques, used in the past by naturalist to record impressions of specimens. It involves exposing photosensitive paper to the sun. It takes on average between 5 and 30 for the impression to develop, and a careful positioning of the sample is crucial to produce a clear impression showing key features of the plant. Making a cyanotype involves looking carefully and spending time outside with the plant.

The Biodiversity Logbook kit provide students with prompts to notice and record observations and data, focussing on differences and similarities between various environments and plants. Students can do so through a variety of modes of expressions that are used in conjunction throughout the activity: written observations, checklists, data entry forms, annotated drawings, and cyanotypes. This invites them to explore different media and reflect on what each mode captures and what it leaves out. It also provides space for discussing different types of knowledge, including how certain species can give us environmental clues, and traditional uses and beliefs of certain plants.

One of the key aims of environmental pedagogies of care is to promote long-lasting meaningful connections between people and their everyday environments. Several months after the initial pilot of the project, we met with the first group of children and teachers involved, who used the concepts of looking closely and noticing as a guiding principle for the school year. We learnt that children have been actively working on a number of small growing projects, and that observing plants and how other creatures (bees and bugs) interact with them is a core aspect of the activities. And importantly, children have been paying more attention to the plants that can be found in their environment, and have been proud to share their observations with their families.
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This project is run by

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CAPTION:

This map shows the cyanotypes of the plants collected by Year 6 students of Slyne-with-Hest St Luke Primary School. It also include the information about the plants habitats, which was recorded through sensors and direct observation. The fieldwork was conducted on 30 June 2021 in Slyne-with-Hest.

Biodiversity Logbooks is a collaboration between Lancaster University and primary school and education facilities in Morecambe Bay. It investigates an integrated learning approach combining the use of cyanotypes, drawing practices, fieldwork, and creative computing to get a better plants in their environment.

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