Chapter 3

Birds, Bands, and Beyond

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ABSTRACT

This case study describes a partnership between the Avian Research and Education Institute (AREI), College of Mount St. Joseph (MSJ), University of Cincinnati (UC), and science teachers at The Seven Hills Middle School. This partnership enabled the teachers to implement a Bird Studies program and empowered the students to become citizen scientists. The partners used various technologies to establish and maintain an ongoing relationship between the field and classroom, so that students interacted with field ornithologists face-to-face and virtually via the Internet. In the classroom, students assisted researchers as they color-banded birds that visited the school’s wild bird garden. The students then monitored the banded birds, communicated with the researchers, posted updates on the class wiki, conducted biweekly bird counts and submitted data to eBird, created eField Guides, completed inquiry projects, and presented their data at a school event and a community bird festival.

CONTEXT OF PROJECT

One challenge in science education is to engage students in learning experiences that are relevant to them and to local and global communities.

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Conducting science that produces valuable results to the community is motivating and empowering for learners and helps them understand and value the role of science in society (Stoecker, 2002). This study describes how students partner with community members, both face to face and virtually, to become citizen scientists who contribute
meaningful data to the community (through local university-based research projects, national research initiatives, etc.). To accomplish this, the partnership established the following goals: 1) empower students to function as scientists, 2) (re)connect students with the natural world in a way that helps them recognize and value the interconnectedness of humanity and nature, 3) help students develop a sense of place—both locally and globally, and 4) provide students with opportunities for authentic collaboration with community partners. The students’ successful completion of bird-based inquiry projects and their creation of eField Guides that identify and describe the bird species they learned about demonstrate our achievement of these goals.

The key to getting students to understand and not just know science is to frame the content in such a way that students generate questions—for example, “Why do researchers band birds?”—that lead them to investigate the answers on their own (Weick, 1984; Kaplan, 2000; Newell, 2003). These exploratory questions could easily be answered by the science teachers or the partnering ornithologists, and they were. But by color banding the birds at the Seven Hills bird garden, the students began to construct answers for themselves. They documented birds with color bands (for example, “Kiwi” the Tufted Titmouse has a lime-green band), made observations (“I think it was funny that the size of the peanut was bigger than Kiwi’s beak,” as seen in Figure 1) and formulated questions on their own (How will different textures on the perches affect the feeding behavior of the birds?).

In addition to inspiring students to launch their own inquiries, this project used technology to create an ongoing relationship between the field and the classroom and empowered learners to study birds as scientists. Not only did they share their ideas, questions and work with the field researchers, but they were also able to be in the field with them, “virtually” participating in multiple research projects. As the 40 middle school students progressed in their studies of the banded birds in the school’s bird garden, they became more interested in the other projects the researchers were engaged in. For instance, the project’s two partner scientists were part of a 15-person team that conducted a search for Ivory-billed...
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