

A Participant Observation Study of Third Graders' Illustration Responses to Sustaining
their Local Desert Ecology Stories: Hoodoo and Coyote Attractions

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Abstract

In order to build situated knowledge about a sustainable future and about the ecological interrelations of its desert animals and their habitats, teachers need to focus students' attention on local creatures and their environment. How can communities and schools develop a "caring" attitude through art and writing to preserve a sustainable ecological relationship? How can students' ecological knowledge and care of local environment be improved by focusing on drawing skills? This participant observation study concentrates on the illustrations of third graders in Gold Canyon, Arizona, which they made in response to writing about their favorite local desert animal and its habitat under the directions of their classroom teachers. Findings include discrimination of visual qualities including different spatial grounds, mountain formations (e.g., hoodoo forms), color blends/overlap, and vertical and diagonal stroking to suggest mountain direction and striations. Students mostly drew creatures from the typical side view, but surprisingly showed different textures (spiky) also in their cacti. Their favorite creature was the bobcat/coyote form.

Key words: sustainability, ecology, participant observation, hoodoo, and caring.

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As part of a local competition, four third grade classes drew their favorite desert creatures found in their environment after writing about them under the direction of their teachers. In developing situated knowledge¹, third graders study habitats, as part of their curricular Arizona Science and Art Standards in order to promote sustainability² (Arizona Department of Education, 2006). The researchers were excited to see what animals they would choose, how they would portray the animals' habitat, and how they would react to sustaining this relationship.

Ecology and Sustainability

Gradle (2007) believed that ecology, the study of the environmental relationships, is “firmly rooted in an understanding of relationality . . . and the co-ethical nature of co-dependent connections among beings and natural/built communities” that demands participatory knowing (p. 397). Neperud (1995) argued for the need to build team spirit, links with community, and multicultural concerns and multidimensional networks. We also based our integration on the ecological life issue of predator and prey, with all its complexities to inspire student empathy/care for the animals.

Sustainability is commonly understood environmentally, socially, and economically. This understanding entails “ability of a place or a community to meet the needs of its current citizens without compromising the ability of future generations to meet their full range of human needs” (Committee on Identifying Data Needs for Place-Based Decision Making, 2002, p. 3). Blandy (2011) believes that in order to create this sustainable condition, any plans need to include the arts and their traditions. Funded by s National Endowment for the Arts, he reported on the Oregon Arts Commission's attempt to promote the arts as a celebration display called *The Spirit of the Horse* at the Museum of Warm Springs on their local Reservation, which is located in the high desert of central Oregon (Arts Build

Communities, 2009). This exhibit focused on the role of the horse in the community. Similarly, we wondered what to celebrate or sustain in our small desert community.

Participant Observation Assessment Method

For three years, Stokrocki and York (2011) have been motivating, documenting, and studying students' illustrations in response to students' stories using participant observation strategies³. Participant Observation (PO), like ethnography, is a process of describing, analyzing, and interpreting an everyday activity to understand it more fully (Stokrocki, 1997). In PO, the researcher immerses him/herself in the day-to-day lives of the people and any interviews are informal (Creswell, 1998). Spradley (1980) calls it a multi-person, multi-method, and multi-variable method, important for triangulation veracity, and in this case usefulness of the research findings. In this study, multi-variables that we started teaching were spatial grounds, mountain formations, multiple baselines, color mix/overlap, vertical and diagonal stroking to suggest mountain direction and striations, kinds of flora, and creature formation. Participant Observation implies that the researcher is learning from people and not just studying them (Stokrocki, 1997). This stance requires sensitivity to the students and the context. Research questions were: What visual qualities did students illustrate? What was their favorite desert creature? What implications for developing sustainable community art competitions are offered?

Context & Participants

Each year the Arts Council from Gold Canyon, a fairly new unincorporated area outside of Apache Junction, holds an art competition for local students to celebrate their talents. The community is a suburban, middle class, and lies at the bottom of the Superstition Mountains to the east of Phoenix, Arizona. Dr. Mary Stokrocki and Mrs. Emily York⁴, community members volunteered to organize and motivate the competition. Since the Peralta Trails Elementary School has no art teachers at this level, they worked with four third grade teachers and their classes that totaled nearly a hundred students.

Since ecology is part of the regular curriculum, third grade teachers supervised the ecology story writing. Later, one elementary teacher Gina Fraher, whose specialty is science, volunteered to be our key informant. She mentioned that in the Arizona Science

standards, students as young as first graders are learning about the food chain balance. One teaching example she used to explain the balance of nature is “It's like pulling on a string. She explained to students, “On one side is the predator and on the other is the prey, if one let's go (disappears), the other is affected⁵.”

Procedure

Due to lack of school time, Stokrocki asked the third grade teachers to administer the prequestionnaire and encourage students to write their desert stories in advance. Stokrocki and York focused on the illustration segment, which lasted about 55 minutes. They introduced the problem and questions to students, collected and analyzed their drawings, and interrelated their answers (post questionnaires), drawing results, and stories to determine learning. We also compared findings to similar studies and raised questions and implications for developing future sustainable community art competitions (Creswell, 1998).

Stokrocki's preservice university art students practiced scoring the illustrations based on the categories (3 points in each category): Landscape grounds/baselines, creature details and textures, and action expression/projection, totaling 18 possible points. This participant observation study highlights the drawings and describes the qualities they chose without the numeral points because the qualities revealed students' diverse formations and care. We gave all students certificates of merit, displayed the illustrations that received the highest scores at the Gold Canyon Arts Council Annual Meeting, and introduced the two top student winners and their parents.

Project

More specifically, instead of drawing any old thing for the competition, Stokrocki and York motivated children in four third grade classes to illustrate their desert stories that their teachers encouraged them to write. As motivation, Stokrocki and York shared children's books on desert creatures. Students introduced their main character and the desert habitat/setting, added a conflict and/or adventure with another animal, and finished the story day. Using crayons and 8 x 10" bond paper, she directed students how to draw

the desert landscape including foreground, middle ground, and background. Stokrocki asked students to identify the shapes in their desert mountains as they discovered that the mountains are more rectangular not triangular. She also showed them how to start to draw the animals by using overlapping ovals in the drawing desert animal guides that she had them follow⁶. Students were very excited to start the lesson experience.

Story Examples

Space does not allow us to discuss story guidelines, so we present a few student examples and their accompanying illustrations. Third grade stories in general were delightful, diverse, and complete with titles such as “The Hot Dusty Arizona Air” (JB’s SPED⁷ class). Several of the stories revealed friendship or problem themes. An example of the friendship theme is this excerpt from *The Happy Roadrunner*:

When Sue woke up in the morning, she decided to go and look for some bugs to eat. She was very hungry. While she was eating, she thought she heard that really strange roadrunner sound again. She thought that it was very mysterious. She stopped eating. Sue got up and saw an unusual brown speck in the sky. It was very low, though. She couldn't imagine what it could be! It got closer and closer. She could see that they were roadrunners! “Now I won’t be lonely anymore!” thought Sue happily. Then, they all landed. “Want to be our friends?” asked the new roadrunners. Sue was so surprised. “Sure,” she said happily.

In contrast, a dramatic example of this problem was *Micro Burst*:

One day something horrible hapend (sic) . . . there were some strong winds that day. We saw several dust devils, when we saw the last one, coyote said, “I think there’s going to be a micro burst!” Then came a wind so hard it almost swept us off our feet. Micro burst!!! Things were not looking good, when a big wind took us flying and it made us land not far from our clubhouse . . . finally we got inside and we were so happy . . . (MJ). See Figure 1.



Figure 1. The wind curls on right and the water running from the top of the mountain and meandering down under a bobcat (MJ, Female, Coyote & Great *Micro Burst* story, in GF's class).

Several students in JB's SPED had a delightful sense of humor in their stories. For example, from the student story of *The Missing Fruits*, Sally the Jackrabbit is working on the case of the missing prickly pear fruit with her friend Peck the Cactus Wren and the Owl Hoot. Sally explained, "The missing fruit is a bummer. Now we can't make toast with jam smeared on top." They set off to find the fruit and "Peck meets a snake named Hiss, who knocks him out and brings him to his burrow (sic)." The friends search for their missing friend and find "a hole filled with prickly pear fruits. "Hiss didn't want anybody to know about his love for the tender, juicy fruits. So he stole them" (AM, BS's class). We didn't score the stories but used them as motivation for student illustrations. In response to their stories, students therefore drew their illustrations in a variety of ways.

Illustration Findings

Without instruction, third graders tend to line up their characters in a row (See Figure 2). The drawing picture resources of local mountain formations and pictures enabled students in constructing their spatial format, floral and fauna creatures as described in the examples below.



Figure 2. A third grade drawing without guidelines shows desert creatures lined in a row.

Different spatial baselines, grounds, and mountain formations. After Stokrocki pointed out the fore/middle/back grounds of the picture format, students' desert landscapes included these distinctions and mountain formations became diversified. Usually students may draw triangular stereotyped mountain formations in a row. In the classes, Stokrocki insisted that students use more angular mountain forms as the ones that they saw outside their school. When she showed students the nearby mountain forms in the distance, in a landscape, outside the school door, one child remarked, "They look like fingers." Stokrocki praised the child's delightful response and the child traced her fingers, some of which overlapped each other (See Figure 3). Indeed several students followed this lead.



Figure 3. See example of overlapping "finger-shaped" mountain forms JG (F, *BS's class*).

Dramatic mountainscapes. Almost all students drew the dramatic mountains in the distance and their strokes were vertical to accentuate their direction. One drawing featured an incredible black canyon layout showing eroded volcanic forms (with bobcat with lizard). See Figure 5. Vertical strokes accented the drawing direction of these forms.



Figure 5. Incredible canyon layout featuring eroded volcanic forms, *The Bobcat* (DS, male, BS's class).

Color Blending. Usually students at this age use typical colors to draw (blue sky, brown mountain, green plants). We motivated students to blend/overlap colors to make new ones and in general they did so. The best use of color and multi-grounds was *Sue, the Happy Roadrunner*. We counted at least seven baselines, eight buttes, and three animals running in the foreground. Orange dominated the picture with the most vibrant in the bottom front (orange and brown mix) and a yellow-orange sun setting behind a foothill. Behind this configuration were other buttes and a curved skyline with a sunset of blue overlapping orange colors with a floating white cloud. The strokes in her hills were diagonal, showing knowledge of slanting striations, and a variety of cacti: ocotillo saguaro, and barrel cactus (Figure 4).



Figure 4. *Sue, the Happy Roadrunner* drawing features several grounds of orange coloring (ML in PC class).

Favorite desert creature & details. When writing their stories, students chose a variety of critters, but when drawing their stories, the coyote was the most popular illustrated animal. The provided picture resources no doubt helped students to construct the animals starting with ovals. No doubt that the students in all four classes favored the coyote/bobcat form, and were not afraid to draw it from side view, as seen in most of the illustrations (BS's SPED class 27%). One coyote, for example, drawn from the side view and standing on a mountain ledge in an unusual landscape was striking. The student's (JK) description was insightful, "Coyote had a long bushy black tail and his face was pointed . . . he was searching for food." See Figure 6. Coyote (JB's class) was popular because of its frequent visible form in local neighborhoods. Students noted that these scavengers look around for small animals and garbage to eat.



Figure 6. *Coyote Searching For Food* stands on edge of a cliff in an unusual landscape⁸ (JK, male, JB class).

Use of varied textures. Most students' desert creatures had some kind of marks to represent texture. Students' (20 total) drawn and described examples from BS's class were fur (6), feathers (3), or scales (2). Noteworthy were described details such as Gila monster with "lots of scales" and "the slow, bumpy tortoise." Noteworthy was *Javelina* that consisted of unusual animal form & texture marks consisting of short horizontal dashes and some marks perpendicular to the animal contour (Figure 7). When Stokrocki watched JO draw, he tried so hard that he cried that he was not doing it correctly. She noticed him trying to draw the javelina from a book and with large heads and slotted eyes. He called the texture, "spiky."



Figure 7. The student used unusual *javelina* "spiky" texture marks (JO, male, in JB's class).

Use of shading, shadows and saguaro cactus. Most students drew the stereotypic state saguaro cactus with spike marks (e.g., over 50% BS's class). Only a few students included shadows or shading and identified it as "dark/light shades." In KS's drawing the hummingbird has some shading and the five cacti cast shadows (Figure 8). KS talked about the blending of colors in her tree. She also identified ocotillo to the left, barrel cactus in the middle, and saguaro to the right. Her drawing showed overlapping branches, ribs, cactus arms and bird wings drawn in profile. We noted students' delightful story environmental interpretations and remarkable care in drawing landscape, creatures, and visual details.



Figure 8. Desert Story featured a hummingbird that didn't give up (KS, female).

Comparison of the Prequestionnaire and Post questionnaire Results

Our first question was what is ecology? Out of a class of 18 students⁹, fourteen students wrote that it is a study of plants and animals. A few students mentioned only animals, and only one student didn't know the term. Since they had just studied the unit on Desert Ecology, we ascertained that students comprehended this complex idea. On a prequestionnaire, when we asked what is a desert, most students understood it as a dry (over 50%), but also rocky, sandy, and hot, with few trees. Post questionnaire answers revealed, that the desert needed "a lot of water" (60%) and one child remembered that it officially received "about seven inches of rain."

Then we asked students if they knew the name of the desert where they lived. At first, students didn't know the desert name and responded "Arizona" (60%). Post-questionnaires revealed that they learned the desert name Sonoran with various misspellings--Solin, Shorn, or Sonoren. The next question, about how do you care for the animals evoked diverse answers. Students mentioned, "Give them a home, feed them, and don't litter. Only one student said, "Leave them alone." They were empathetic, "Be nice and kind." Another student warned, "Be careful." Later, we discussed this problem and warned students that some animals may carry diseases. When asked how to care for the desert on their post-questionnaire, 40% students insisted that we pick up the trash:

two students said, “Leave them [animals] alone”; and two students gave no response. We surmised that students understood that “caring about the environment” involved keeping it natural (clean), but animal care involved distance. This last important point shows the impact of connecting art and ecology in education.

For the art related question, what is an illustration, students answered, “drawing” (one-third) or “pictures” (one-third); or confusedly responded, “story.” Post questionnaires revealed students (60%) understood it as drawing and picture, story, and diagram in a book. Two students still thought that the illustrator was the author.

Conclusions

Participant observation results revealed that school/community art projects with “caring” themes and motivated learning are more likely to provide better learning experiences and sophisticated drawing results. Students appreciated the drawing lesson experience and some responded to the erosion mountain forms as “fingers.” We all learned that these geologic forms are called fairy chimneys or “hoodoos” (Wikipedia, 2011). The experience deepened students’ experience as they learned to look more closely at desert and its details.

What visual qualities did students learn to manipulate? Instructors can help students to focus on such visual qualities as spatial grounds and details (Boughton & Freedman, in process). Without any teaching, third graders will continue to line subjects in a row on some artificial straight baseline, using typical front view. Third graders seem to focus more on their landscape grounds. Drawing dramatic mountain formations (angular, finger, volcanic), blend/overlapping colors with corresponding stroke directions (mountain), making texture markings. Only a few students attempted to make shadows or shading and identified it as “dark/light shades.” The dominant texture, both flora and fauna, was “spiky.” One teacher remarked, “Everything in the desert is prickly.”

What was their favorite desert creature and details? Third graders were nervous illustrating animals because they never had a lesson and appreciated the drawing guides and yet made their own delightful versions. The coyote/bobcat form probably was the most popular probably because it is most dramatic and fearful. Surprisingly, we

discovered that when guided, we found third graders can draw just as well as seventh and eighth graders, who tended to draw tiny images (Stokrocki, Flatt, & York, 2010). We noted students' attention to texture (fur and spiky forms). Third graders illustrated a greater variety of spatial formations and animals as compared to the middle school illustrations.

What were some implications for developing sustainable community art

competitions? Communities need to relate art competitions to development of their sustainable needs. Returning to Blandy's (2011) admonition that to protect or sustain local traditions starts with encouraging students to attend to visual qualities—community details and preserving spatial and creature relationships. Communities therefore need to go beyond merely “facilitating participation” (p. 250). In order to do so, they need to observe the visual qualities of the community, its creatures, and its details, even in their backyards. Children then need to write about details and relationships, and illustrate these stories to deepen their awareness. In their stories, for example, students were aware that these animal scavengers look around for small animals and garbage. Adults as well as students need to understand that the balance of nature should not be disturbed with pesticides, or by feeding predators, or by shooting for fun. Instructors need to foster community care -- ethical issues with vital stories. Teacher Gina Fraher added, “Kids must see someone in the community cares enough to take time to share their specialty knowledge with them.” Then she pointed out that adults must see that the children “care” about the environment too. Then they need to develop a “caring” attitude to preserve and celebrate this delicate relationship by discussing and writing about it. In this way, children become sustainability advocates to protect the community environment and its arts¹⁰. Fraher continued, “Collaboration of adults and children is important to build a sustainable relationship.” The emotional experience of this event can be summarized in this response that one little girl sent to her teacher, “Today is the best day of my life. I am so happy that I cried (sic).”

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1 Situated knowledge entails experiential and contextual interpretations that determine meaning of actions (Streibel, 1995).

2 Grade 3 Concept 1: Changes in Environments--Describe the interactions between human populations, natural hazards, and the environment.

3 Stokrocki, M., Barnes, K., & York, E. (in review). Reflective ecological learning: High school students write about and illustrate their local desert creatures and environment. *Journal of Art for Life*, Florida State University. This study with the art teacher Barnes lasted several weeks.

4 I use last names only to save space.

5 Third grade teachers also took their classes to the local Superstition Mountain Museum to learn more about their local desert ecology.

6 For lessons on drawing deserts and desert mammals, see Anderson, H. (2010). *Art Education and Eco Awareness, A Teacher's Guide to Art and the Natural Environment*. Worcester, MA: Davis Pub. Inc.

7 Drawing results from the SPED (special education) class revealed that students' illustrations were just as competent as those of regular students, probably because their teacher's training (GF) specialized in science.

8 The student declared that his unusual drawn cacti, "looks like they are dancing."

9 We selected one class (PCs) as the focus of the questionnaires because it was the first morning class and had the most diverse results.

10 Special thank you to Principal Mark Blomgren for supporting and Elementary Art Teachers: Pam Campbell, Gina Fraher, Jenny Bush, and Bobbie Smith for participating in this Gold Canyon Arts Council sponsored Residency and Student Art Exhibit.

Global Community Collaboration: Exchange artwork. Coyote Places the Stars