

Students' Reactions to the Use of Animals as Instructional Tools for Science

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Abstract

Teaching science to students with special needs requires different approaches. The **purpose** of this study: to provide a formative program evaluation **documenting students' reactions to the use of animals as instructional tools for science.** **Students with disabilities** were scoring lower than those students without disabilities. It was conjectured that delivering science in a hands-on environment using animals would increase student interest to learn science and provide an alternative and effective way to meet teaching standards in science and tap into students' natural curiosity and interest in the world around them.

Problem

2009 standardized-test scores in science for one school district showed a discrepancy between the scale mean scores of special education students and those of general education students. **Packaged science kits were used to teach the entire student population.**

These kits alone did not appear to provide for adequate coverage of the students' interest in science or adequate coverage of science standards, therefore there was a need for differentiation in the delivery of science instruction to students with special needs. One strategy not adequately documented or explored is the use of animals in the classroom as science instruction tools.

Purpose

The purpose of this qualitative case-study was to observe and document the reactions of fifth-grade students with learning-disabilities toward using animals as instructional tools to learn science.

Relevant Literature

Conceptual Framework

Constructivist paradigm (Dewey, 1997, 2001, & Darling-Hammond, 1997, 2008).

"Childhood, a period during which we are particularly motivated to seek out the natural world around us" (Piaget as cited in Verbeek & Waal, 2002, p. 8).

Supporting Research

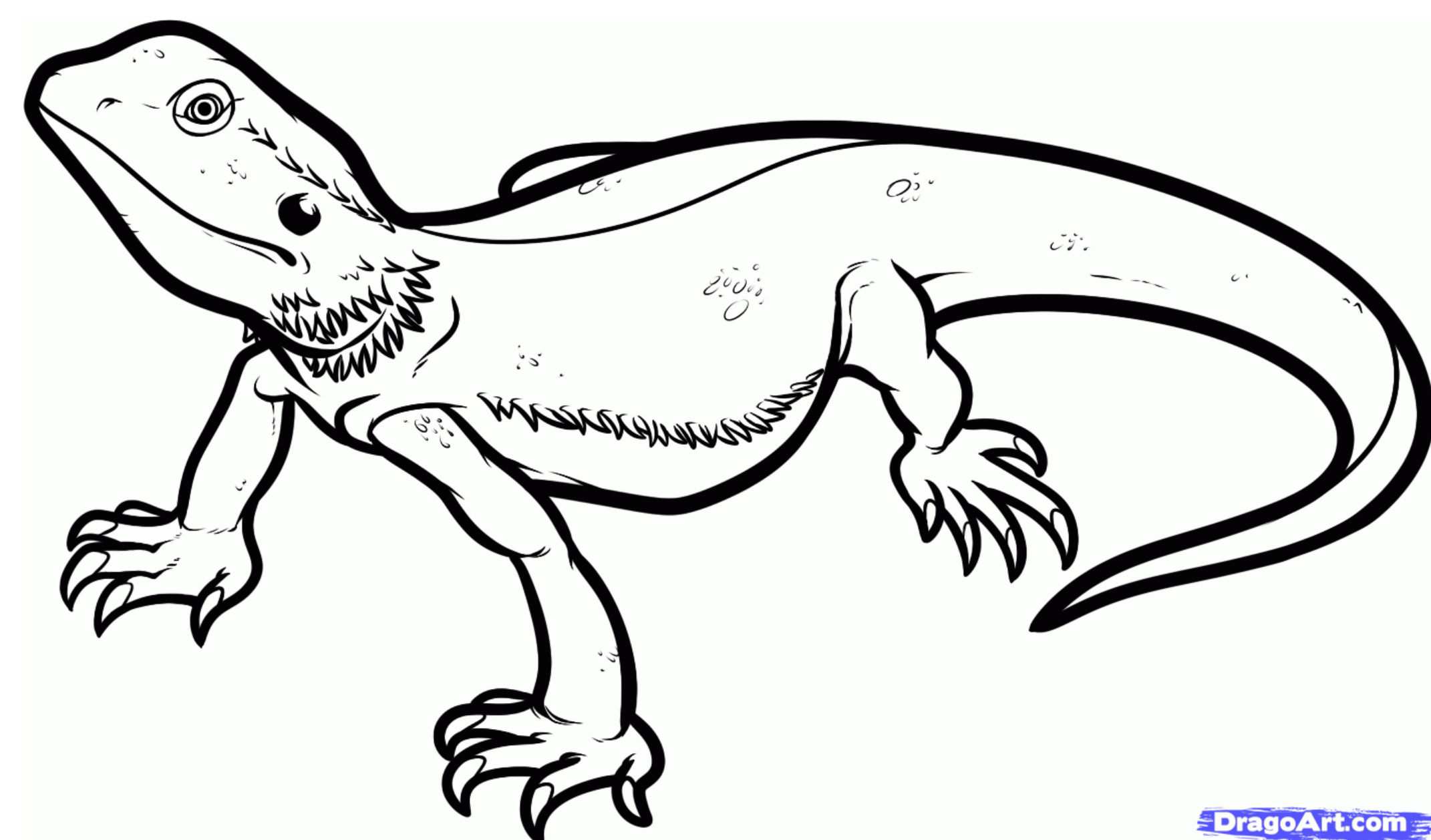
- Students with disabilities learn best by doing (Castle, DeMegret and Grabiner, 2011).
- Children have an intrinsic connection with nature (Louv, 2006), referred to as biophilia (Wilson, 1984).**
- Nature and animals can help children learn science. (Myers and Saunders (2002) p. 153).
- Children have a connection to nature (Kellert, 2002, Louv, 2006, Sobol, 2008).

Other Relevant Information

•Core Curriculum Content Standards for Science (2009) in New Jersey emphasize that science should incorporate direct interaction and active participation with the natural world.

Research Question

How do fifth-grade students with learning disabilities react to science when animals are used to facilitate instruction?



Procedures

Sample

A purposeful sample of 10 fifth-grade students with special needs.

Setting

Self-contained classroom for students with language learning disabilities with the enhancement of animals in an experiential environment.

Animals in this study included a ball python snake, Madagascar hissing cockroaches, fresh and salt water fish, various insects, and a bearded dragon lizard

Data Collection

Constructed a case record to document students' reactions to the classroom where animals were used to teach science.

Collection of data through student focus group interviews, observations, and student journals.

Data Analysis

Using inductive analysis in combination with typological analysis to deconstruct the data into themes and patterns, the foci of the study analysis were

- students' reactions to the use of animals to teach science
- Evidence of the students' attitudes toward learning science using animals to facilitate instruction.

Findings

Students in this study showed a desire to be active and engaged participants in their own learning.

- **Students collaborated and supported each other** so that all of the students benefited academically and socially from the experience.
- **The class became a cohesive group of engaged, active learners.**
- **Students transferred skills** acquired from their experience to their lives and to other academic areas.

Limitations

Study focused only on one learning-disabled classroom.

The use of animals in this format is not widespread.

Sampling makes generalizations of results more difficult.

My own experiences with this topic may have impacted my conclusions.

Conclusions

The use of animals was positive and may result in more student engagement in learning.

Activities with animals may build self-confidence.

Tapping into students' curiosity and interests can increase students' interest to engage in science as well as other curricular areas.

The information provided may be beneficial to students, parents, teachers, administrators, and other stakeholders.

Such learning opportunities may result in greater student achievement and lead to future research.

Social Change Implications

Students with disabilities may be provided affirmation of their abilities to actively learn, experience, and understand science through the use of animals in such a way as to recognize their interests and develop their strengths.