Developing Language Proficiency through Project-Based Learning

by Melissa Hainline, Thereza Vahlstrom, and Kathryn Picanco

Summary: The Project-Based Learning method was used to create a third-grade unit on animal habitats to contextualize and incorporate strategies to develop language proficiency for English Learners (ELs). In this unit, students had several opportunities to engage in activities to help them acquire literacy skills in an inquiry-based, interdisciplinary curricular context where they were given choices in how they learned.

Keywords: Project-Based Learning, PBL, ELs, literacy skills

Project-Based Learning (PBL) is "a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge" (BIE, nd., para 3). Research demonstrates that PBL is an effective method of teaching and can lead to greater learning gains over traditional methods in social studies and science, as well as math and literacy (Kingston, 2018; Strobel & van Barneveld, 2009). It is also a demonstrated practice for increasing student achievement in schools with lower socio-economic levels (Summers & Dickerson, 2012) and with students of diverse backgrounds (Halvorsen et al., 2012; Harris et al., 2014). While student academic learning gains are notable, the essential elements of PBL can also develop student autonomy and thinking skills through culturally-responsive teaching strategies with rigorous content personalized for students.

The Seven Essentials

High-quality projects are specifically designed with common elements to leverage student learning. The seven essential project design elements of Gold Standard PBL (BIE, 2019) include

- a challenging problem or question to frame the project;
- sustained inquiry on the question;
- an authentic product reflective of the field of research;
- student voice and choice in creating and conducting the project;
- reflection on the learning process;
- critique and revision; and
- a public product that enhances the learning of others.

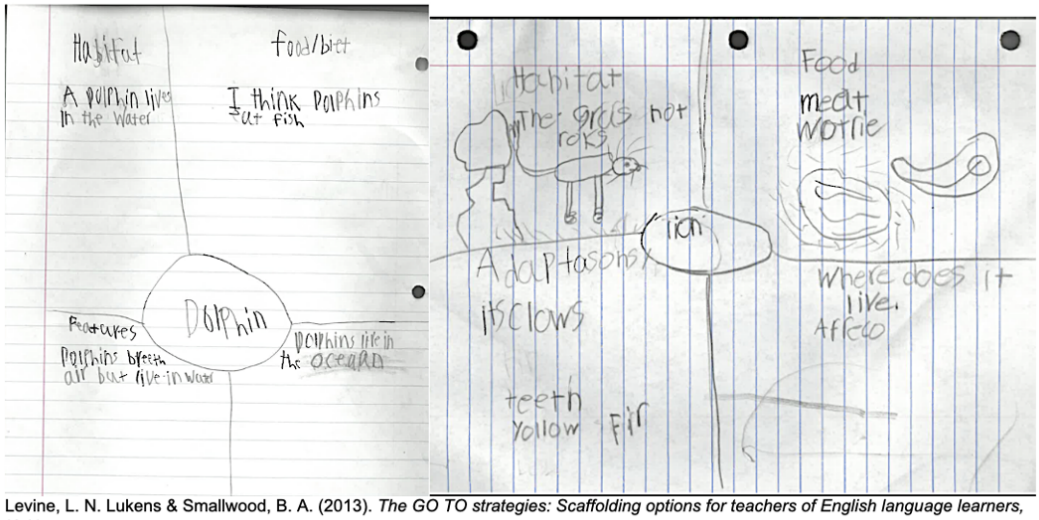
Projects are focused on "students acquiring key knowledge, understanding and success skills" (BIE, 2019, p.1). These elements are embedded in projects to provide a challenging, personalized, integrative learning experience through inquiry-based instruction (Juliani, 2015).

This article has as its main goal to highlight the elements of PBL applied to a third-grade unit providing the reader with the step-by-step procedures for its implementation and the learner gains.

Animal Habitat Project

With these elements and rationale in mind, Project-Based Learning was used to create a unit with the guiding question, "How do animals adapt to change?" to contextualize and incorporate strategies to develop language proficiency for English Learners (ELs). This unit was developed for a diverse third-grade classroom in an urban setting that includes highly-capable, progressing EL, special education, and low-level readers. Being an inclusive setting, the English Language Development (ELD) teacher gives support not only to the ELs, but to all students as they acquire academic language. All students had several opportunities to engage in activities to help them acquire literacy skills in an inquiry-based, interdisciplinary curricular context where they were given choices in how they learned.

The unit was intentionally designed to scaffold the PBL process for students using its essential elements. Week one focused on "students acquiring key knowledge, understanding and success skills" (BIE, 2019, p.1) by developing reading comprehension and writing skills with



Levine, L. N. Lukens & Smallwood, B. A. (2013). *The GO TO strategies: Scaffolding options for teachers of English language learners, K-12.*

Figure 1: Sample word squares to activate prior knowledge

scaffolding strategies (Levine, et al., 2013) contextualized to the unit topic. Week two, students applied these skills with short inquiry-based activities as they read multi-genre texts on habitats and different animals. Week three of the project shifted to asking students to personalize the unit driving question, begin their own sustained inquiry and start developing their product. Week four centered on finalizing the research and product to share their complete project with the class. As a final step, students were asked to evaluate their own work and that of their peers, and reflect on the process overall.

Using word and picture banks to scaffold listening and visual imagery skills

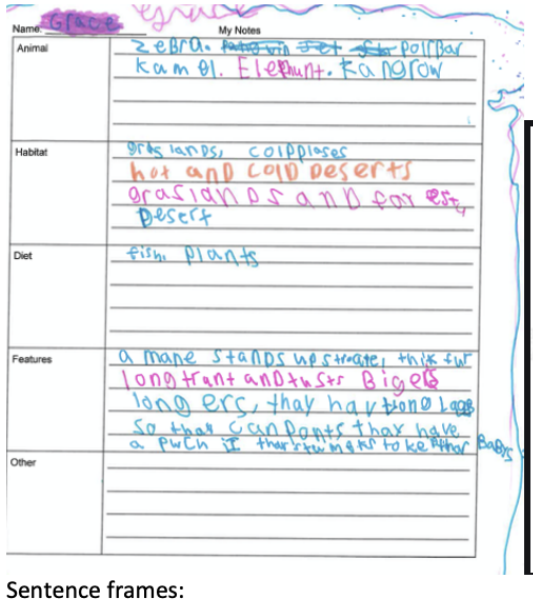
Students were asked to listen to a description of an animal without it being revealed and write down their guess using complete sentences. Students used context clues and prior knowledge to determine what animal was being described. To scaffold for ELs and students with low language skills, sentence stems were provided. For example, "I believe it is a _____ because _____." After everyone shared which animal they thought the description aligned with, a picture card was revealed and the class discussed the identifying information (see Figure 2).

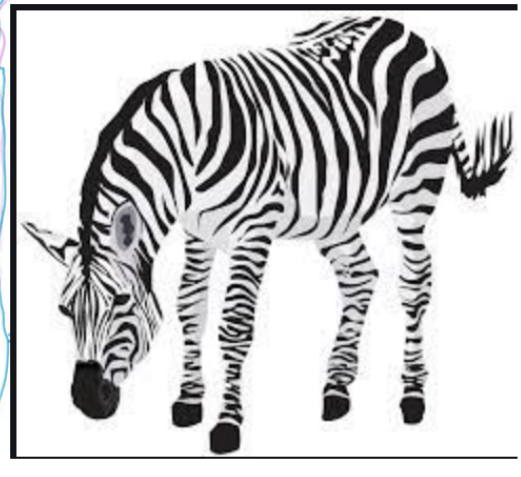
The goal of this listening activity was to draw students' attention to details in the text that allow them to create a picture in their minds and make their thinking visible (Ritchhart, et al., 2011). This strategy helped increase student engagement with the text and boost comprehension skills with consistent checks for understanding by the teacher.

Week One: Skill Building

Activating prior knowledge

Students were asked to choose an animal from the wild for an introductory inquiry. They created a four-square template with the headings: (a) Habitat; (b) Food/Diet; (c) Adaptations; and (d) Location (where it lives). Students wrote or drew what they knew about their animal in each category based on their level of comfort with the vocabulary and writing skills (see Figure 1). Students shared their answers with the class, building content knowledge and addressing students' misconceptions of the topic.





Sentence frames:

I believe it is a _____ because _____.
I think it is a _____ since it has a _____.
My guess is that it is a _____ as it _____.

Figure 2: Sample word/picture band to scaffold listening and visual imagery

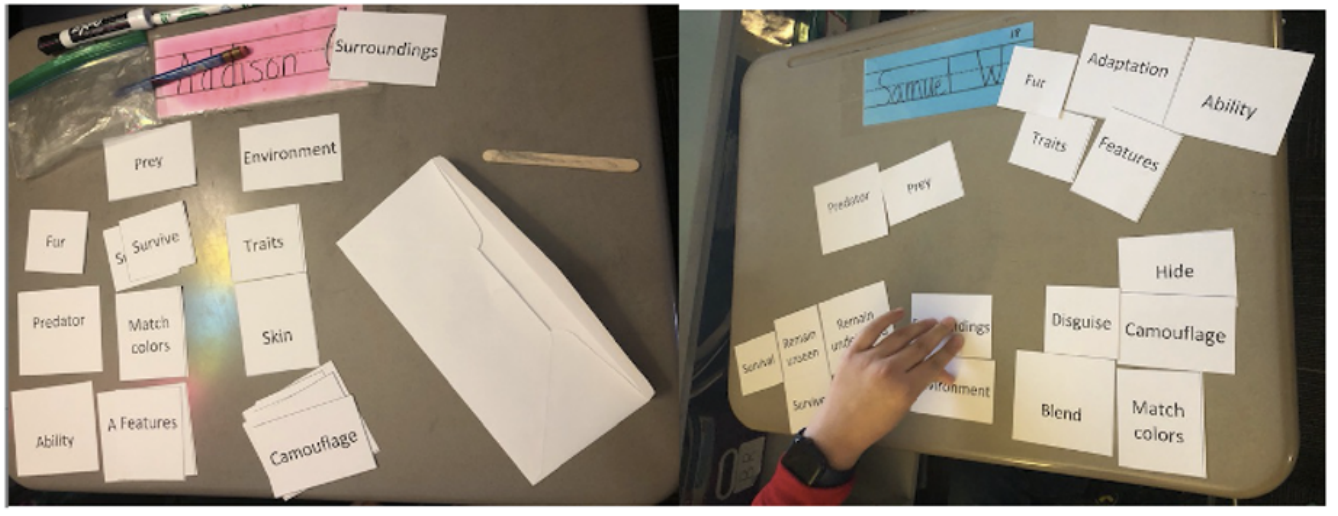


Figure 3: Sample of categorizing and building vocabulary

Getting ready to read: categorizing and building vocabulary

Students were given vocabulary cards to categorize by similar concepts based on prior knowledge of the words' definitions. Once everyone had finished matching, students were asked to share their categories with the class. Students could agree or disagree based on context clues or prior knowledge (see Figure 3). As an example, a student stated, "I put the word 'blend' with 'match colors' because animals change color to blend in."

The purpose of this activity was to help students verbalize their thoughts. It provided students with an opportunity to see, read, and talk about these potentially difficult words in print before they read the text, increasing receptive and expressive oral vocabulary. It also helped scaffold the grade-level text and made vocabulary accessible for all learners.

Information gap and barrier games

Students were given a template with information missing. They had to ask the teacher for the correct missing information while using complete sentences. For example, the student would ask, "What special trait does a stonefish have to help it survive?" The teacher would respond with the correct answer, "It looks like a rock." While this strategy works best when students work in pairs, the "ask the teacher" format was chosen due to COVID19 group work constraints. It gave students an opportunity to engage in the practice of asking questions and elaborating answers using academic language. It also offered needed time to process content after learning.

Descriptive text

Students were given animal picture cards that included its picture, traits, habitat, and fun facts. Students had to find adjectives that described their animals from the card. Students filled in a chart with the adjectives following the order in which the adjectives should be presented, such as opinion/observation, size, shape, and color (see Figure 4). Then they read their sentences out loud. Students came up with a variety of sentences. For example, "I am a smart, long-legged, brown, Australian, jumping kangaroo."

This strategy helped students build grammar awareness by understanding the importance of adjectives and the amount of information they carry. It also helped to move students from simple sentence structure to a more complex sentence structure.

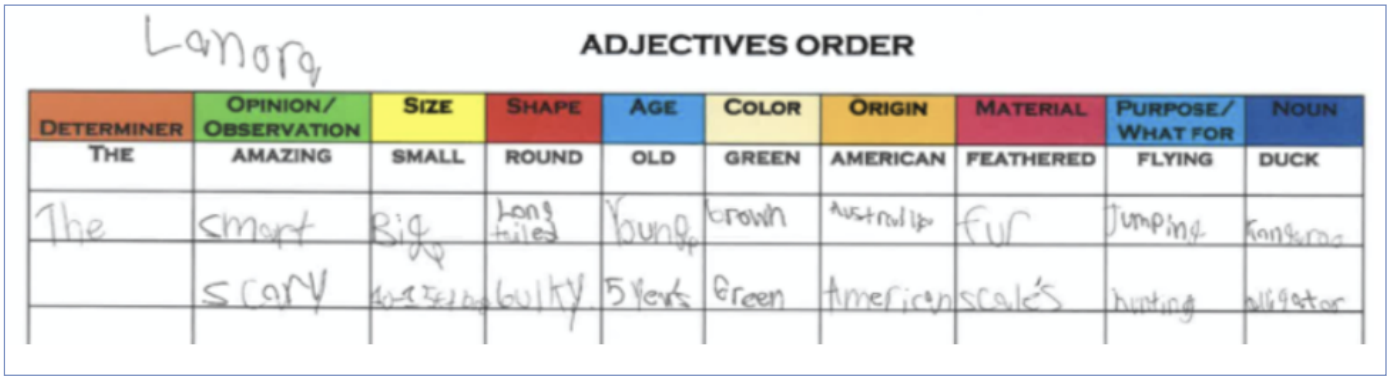


Figure 4: Sample adjective order chart

Week Two: Building Knowledge Through the Application of Reading Skills

Students were asked to read different texts describing animal habitats and animal tools for survival. They applied the strategies they practiced in week one to explain what clues led them to the answers to the questions posed by the teacher during their shared reading. The teacher also highlighted language features such as signal words that help students understand and extract the meaning of the target vocabulary.

During the shared reading, the general education and the ELD teachers noticed a significant improvement of comprehension and fluency. Teachers attributed students' improvements to the fact that prior knowledge had been activated with the vocabulary, reading comprehension, and metacognitive strategies in the pre-reading activities in week one. Students were able to identify the meaning of the words in context, find information in the text, and explain their answers by pointing out text features or verbalizing strategies they applied. Students performed at a much higher level than their benchmark assessments from the beginning of the year revealed by their ability to apply multiple reading comprehension strategies prior, during, and after reading. Haney and Ramirez (2020) claim that skillful readers often apply these reading comprehension and metacognitive strategies subconsciously. It is fundamental that teachers offer students all kinds of opportunities to develop their reading skills through practice and repetition to increase their comprehension.

Week Three: Student-Selected Independent Project Design and Research

Students selected an animal to research to answer, "How do animals adapt to change?" for sustained inquiry and to share their knowledge with others. Next, they could choose to express their learning with either a diorama or a poster that depicted their animal habitat and survival features. Students researched their animal using teacher-selected websites and texts at their appropriate reading level. They were given a template to help them focus on information that was relevant to their research and aligned with the project rubric (Levine, et al., 2013). Project rubrics helped the students ensure they had the required content and level of detail expected. Knowing that they would need to present their projects to the class prompted students to work simultaneously on their products and accompanying research paper.

Week Four: Finalizing, Presenting, and Reflection

Students used their writing as a guideline to their presentations. On the final day of the unit, students presented their research to the class and self-evaluated their projects (see Figure 5).

Student engagement in this stage of the unit was noticeably high. Students felt confident reading independently and identifying relevant information about their chosen animal. Students who used the rubric could determine their progress and thus their rate of success. Furthermore,

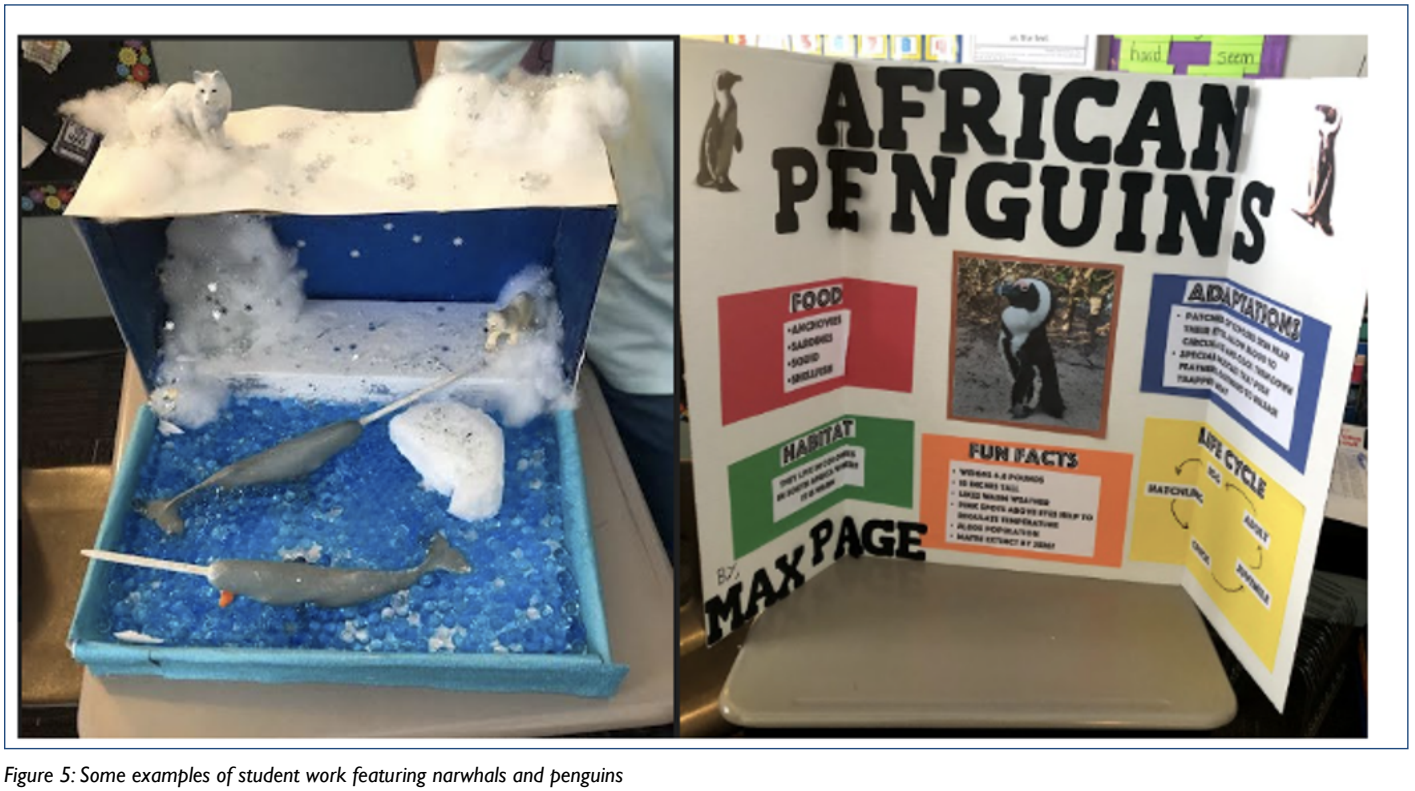


Figure 5: Some examples of student work featuring narwhals and penguins

students took ownership of their projects. They were excited that they had the freedom and opportunity to work on something they felt enthusiastic about, to use their creativity, and to share their work in a way they were confident with.

Project-Based Learning: Differentiated Instruction At Its Best

The overall structure of the project's first two weeks was instrumental in developing students' autonomy for independent project completion. The structure allows the teacher to scaffold essential skills and knowledge through contextualized inquiry, illustrating that once language is unpacked and made more comprehensible, students feel much more confident and motivated to explore.

Project-Based Learning embeds culturally responsive teaching and high-leverage practices while integrating instruction across disciplines. The content, process, and product can be intentionally designed to reflect the readiness levels, interests, and learning profile of each student. PBL becomes the vehicle in which differentiation can occur in a classroom to ensure student learning is not just happening, but that it is happening in a meaningful way that leads to deeper learning and transfer of knowledge and skills that includes all students seamlessly.

References

Buck Institute for Education (2019). Gold standard PBL: Essential project design elements [PDF file]. Retrieved from https://my.pblworks.org/resource/document/gold_standard_pbl_essential_project_design_elements.

Buck Institute for Education (n.d.). What is PBL? [webpage]. Retrieved from http://www.bie.org/about/what_pbl.

Halvorsen, A.L, Duke, N.K, Brugar, K.A, Block, M.K., Strachan, S.L., Berka, M.B., and Brown, Haney, J. L., Ramirez, B. (2020). HI-LO BOOK™ comprehension strategies guide: How to use HI-LO BOOKS to build reading mastery. Saddleback.

Harris, C.J., Penuel, W.R., DeBarger, A.H., D'Angelo, C., and Gallagher, L.P. (2014). Curriculum materials make a difference for next generation science learning: Results from year 1 of a randomized controlled trial. Menlo Park, CA: SRI International.

Juliani, A.J. (2015). Inquiry and Innovation in the Classroom. New York: Routledge.

Kingston, S. (2018). Project based learning and student achievement: What does the research tell us? PBL Evidence Matters. 1(1), 1-11.

Levine, L.N., Lukens, L. & Smallwood, B. A. (2013). The GO TO strategies: Scaffolding options for teachers of English language learners, K-12. Project EXCELL. Retrieved from www.cal.org/excell.

Ritchhart, R., Church, M. & Morrison, K. (2011). Making thinking visible: How to promote engagement, understanding, and independence for all learners. Jossey-Bass.

Strobel, J. & van Barneveld, A. (2009). When is PBL more effective? A meta-synthesis of meta-analyses comparing PBL to conventional classrooms. The Interdisciplinary Journal of Problem-Based Learning. Vol. 3(1).

Summers, E.J., and Dickinson, G. (2012). A longitudinal investigation of project-based instruction and student achievement in high school social studies. Interdisciplinary Journal of Problem-Based Learning, 6(1), 82-103.

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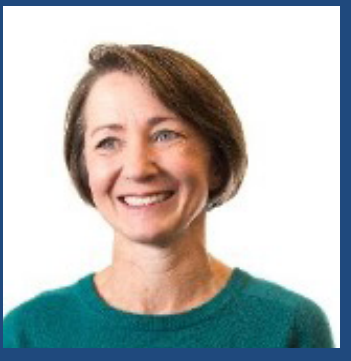

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