

Using Concrete Materials to Create Engaging Early Childhood Environments for Dual Language Learners

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Young children are spontaneously inquisitive, active, and curious about their world. To guide their inquiries and develop knowledge and skills needed to succeed academically, they need teachers who understand intricate aspects of a pedagogy that integrates age-appropriate, engaging, and linguistically accommodated instruction. A key aspect in the design of engaging early childhood environments for dual language learners is the strategic planning of lessons that incorporate concrete materials and experiences with real things (Kostelnik, Soderman, & Whiren, 2011). In this essay, the author suggests that direct experiences with nature promote language development and cognitive engagement and are particularly beneficial for linguistically diverse learners (Arreguín-Anderson & Esquierdo, 2011; Echevarria & Graves, 2011).

COGNITIVE ENGAGEMENT

Early childhood scholars assert that young children should spend significant amounts of time in direct contact with materials that they can directly manipulate and explore through their senses (Hendrick & Weisman, 2007; White & Stoecklin, 2008). This recommendation is in line with principles of developmental direction indicating that children learn best when their experiences gradually proceed from concrete to abstract and from known to unknown (Kostelnik et al., 2011). The National Association for the Education of Young Children (2009) highlights the interconnectedness of all domains of learning and asserts that as soon as “children learn to crawl or walk, they gain new possibilities for exploring the world and their mobility affects both their cognitive development and their sense of autonomy” (p. 11). Active involvement in knowledge construction maximizes dual language learners’ ability to engage in complex thinking.

Because numerous organisms, things, and concrete materials can be found in nature, outdoor environments genuinely entice children to engage in active exploration. This attraction to the outdoors is not a coincidence. Wilson (1993) coined the term *biophilia* to theorize that humans are innately predisposed



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to affiliate with nature. To capitalize on this attraction, children's books often portray an abundance of animals and plants. Departing from the assumption that encounters with nature trigger mental activity, Lawrence (1993) proposed the idea of "cognitive biophilia" to highlight the ways in which affordances, or opportunities within nature, "make us think." As Kellert (2002) posits, "a process of intellectual competence spirals upward through a matrix of direct, indirect, and vicarious experiences of nature, strengthening the cognitive muscle we call mind..." (p. 125).

Research shows that direct experiences with nature promote cognitive engagement across all levels of Bloom's taxonomy in linguistically diverse environments (Arreguín-Anderson, 2015; Arreguín-Anderson & Kennedy, 2013). In a study with bilingual learners in the context of an afterschool program, children in Grades K-5 participated in self-generated inquiries or *proyectos de indagación*. Findings revealed that children selected animals, plants, and life-like processes as the most common topics of their research projects. Additionally, it was found that beginning with phase one of their inquiry, children formulated a variety of open-ended questions in English and Spanish in relation to subjects such as dogs, flowers, elephants, clouds, and ladybugs. Subsequently, children's observations and plans led them to analyze and synthesize data as reflected in products in which they compared and contrasted, drew conclusions, summarized, and communicated to an audience.

LANGUAGE DEVELOPMENT: PURPOSEFULLY ENGAGING CHILDREN FROM THE START

Real things, especially those found in nature, facilitate thought and language (Shepard, 1998, p. 51), and although an emphasis on children's exploration generally occurs after an initial explanation of the concept, scholars suggest reversing the order of instruction in content areas such as science (Contant, Tweed, Bass, & Carin, 2018) and in any lesson designed with dual language learners in mind. The use of concrete objects, or referents, before exposure to abstract concepts "provides the experiential base of background knowledge" to successfully engage students in the use of academic language (Beeman & Urow, 2013).

It is within an authentic context that teachers can introduce key vocabulary or academic labels and grammatical structures effectively. Some academic

labels can name objects and concepts already present in students' experiences and socially crafted conversations, as is the case when the label "equine" is supplied in reference to a horse, or the label "canine" is provided in relation to a dog. In a unit that focuses on survival and adaptation, a direct experience in the outdoors can prompt a child to point out that "there is a bug under the rock." To capitalize on children's contributions, the teacher can deliberately establish connections with the topic and standards covered while using academic discourse. As scholars assert, "the use of complex and rich language in the presence of concrete objects, or referents, such as animals and plants, ensures that all children, including bilingual

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learners can easily comprehend, or decipher, otherwise abstract language" (Arreguín-Anderson, Salinas González, & Alanis, 2016, p. 77). Additionally, to expand a child-generated observation such as the one mentioned above, the teacher can "use words slightly different from those spoken by the child" to paraphrase with the goal of broadening children's vocabulary and grammatical structures, a strategy known as paraphrase reflection (Kostelnik et al., 2011, p. 50). Examples of teachers' paraphrase reflections include statements such as:

- Great! You spotted a land-living crustacean, or isopod.
- Interesting! What do you think it needs to survive?
- Why does it curl up into a ball?
- What do you notice?
- Let's observe its behavior.
- Why do you think that the roly-poly, or pill bug, lives under the rock?

These reflections purposely include key words in context. Vocabulary introduced in connection with a relevant object, organism, or referent that children ac-

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cess using their senses is likely to enrich children’s linguistic repertoire even as they distance themselves from the specific situation in which the word was acquired. Conversations related to pill bugs, or roly-

polies, offer multiple opportunities to introduce and access vocabulary such as the one listed in Table I.

Through their interactions among each other and with their teachers, children also become acquainted with grammatical structures and pragmatic knowledge of language appropriate for academic contexts and discussions. An initial observation activity of an organism can be facilitated with sentence frames or stems, such as:

- I notice that _____.
- Its shape and size reminds me of _____.
- One important characteristic of _____ is _____.
- The main difference between _____ and _____ is _____.

Table I

Vocabulary Discussed in the Context of a Meaningful Activity

Basic Vocabulary Planned Prior to Concrete Activity/ Direct Experience	Vocabulary and Grammatical Structures Introduced During Concrete Activity/Direct Experience
Living thing	Land-living
Non-living thing	Crustacean
Insect	Isopod
Basic needs	Behavior
Habitat	Adaptation
Food	Survival
Shelter	Shell
Space	Exoskeleton Antennae Burrow Ground

These conversations require that educators maintain a focus on meaning making. Therefore, academic vocabulary and grammatical structures may be produced only orally at this initial phase. Opportunities for oral language development as children explore, ask questions, and discover engage children in the process of symbol formation and conceptual understanding, eventually resulting in ownership and independent application as needed (Otto, 2014).

To promote increased participation in oral discussions, children can be paired up so that they can collaboratively produce output. In pairs, discussions and questions related to observations of intrinsically motivating topics will encourage children to naturally notice “gaps in their linguistic knowledge” (Mirzaei & Eslami, 2015, p. 6). That is, they will know “what they don’t know,” which will prompt them to address and discuss such challenges with a peer and/or their teacher. Facing challenges in context and supportive conversations is crucial. Linguistically diverse learners often face these challenges in isolation and at the individual level in context-reduced settings.

Lessons that prioritize connections and engagement follow an inquiry cycle that takes advantage of children’s natural curiosity in generative contexts such as the natural world.

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Plants, animals, and life-like processes relevant to children’s lives are inherently thought provoking. They generate inquiries, questions, and subsequent discussions that influence the development of knowledge and skills.

Engaging environments involve careful planning and deliberate effort to prioritize meaning construction and counter traditional transmission practices in which teachers dominate classroom discourse. Ultimately, children who are engaged develop an intrinsic motivation or desire to learn. The goal is to situate children at the center of the pedagogical process, one in which children do most of the thinking and most of the talking for significant periods of time, thus becoming empowered as independent learners.

References

- Arreguín-Anderson, M. G. (2015). Bilingual Latino students learn science for fun while developing language and cognition: Biophilia at a La Clase Mágica Site. *Global Education Review*, 2(2), 43–52.
- Arreguín-Anderson, M. G., & Esquierdo, J. J. (2011). Overcoming difficulties: Bilingual second-grade students do scientific inquiry in pairs during a lesson on leaves. *Science and Children*, 48(7), 68–71.
- Arreguín-Anderson, M. G., & Kennedy, K. D. (2013). Deliberate language planning in environmental education: A CRT/LatCrit Perspective. *Journal of Environmental Education*, 44(1), 1–15.
- Arreguín-Anderson, M. G., Salinas González, I., & Alanis, I. (2016). Using acorns to generate an entire alphabet! Nature walks that empower young bilingual learners. *Science and Children*, 53(6), 76–81.
- Beeman, K., & Urow, C. (2013). *Teaching for biliteracy: Strengthening bridges between languages*. Philadelphia, PA: Caslon Publishing.
- Contant, T. L., Tweed, A. L., Bass, J. E., & Carin, A. A. (2018). *Teaching inquiry through inquiry-based instruction*. New York, NY: Pearson.
- Echevarria, J., & Graves, A. (2011). Sheltered content instruction: *Teaching English-language learners with diverse abilities*. Boston, MA: Pearson.
- Hendrick, J., & Weisman, P. (2007). *Total learning: Developmental curriculum for the young child*. Upper Saddle River, NJ: Merrill/Prentice Hall.
- Kellert, S. R. (2002). Experiencing nature: Affective, cognitive, and evaluative development in children. In P. H. Kahn Jr. & S. R. Kellert (Eds.), *Children and nature* (pp. 117–151). Cambridge, MA: MIT Press.
- Kostelnik, M. J., Soderman, A. K., & Whiren, A. P. (2011). *Developmentally appropriate curriculum: Best practices in early childhood*. Boston, MA: Pearson.
- Lawrence, E. A. (1993). The sacred bee, the filthy pig, and the bat out of hell: Animal symbolism as cognitive biophilia. In S. R. Kellert & E. O. Wilson (Eds.), *The biophilia hypothesis* (pp. 301–341). Washington, DC: Island Press.
- Mirzaei, A., & Eslami, Z. (2015). ZPD-activated languaging and collaborative L2 writing. *Educational Psychology: An International Journal of Experimental Educational Psychology*, 35(1), 5–25.
- National Association for the Education of Young Children. (2009). Developmentally appropriate practice for early childhood programs serving children from birth through age 8. Retrieved from [http://www.naeyc.org/files/naeyc/file/positions/Spanish DAP position statement\(1\).pdf](http://www.naeyc.org/files/naeyc/file/positions/Spanish DAP position statement(1).pdf).
- Otto, B. (2014). *Language development in early childhood*. Upper Saddle River, NJ: Pearson.
- Shepard, P. (1998). *Thinking animals: Animals and the development of human intelligence*. Athens, GA: The University of Georgia Press.

White, R., & Stoecklin, V. L. (2008). *Nurturing children's biophilia: Developmentally appropriate environmental education for young children*. Collage: Resources for Early Childhood Educators.

Wilson, E. O. (1993). Biophilia and the conservation ethic. In S. R. Kellert & E. O. Wilson (Eds.), *The biophilia hypothesis* (pp. 31-41). Washington, DC: Island Press.



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