

## Environmental Education for Toddlers and Their Caretakers as a Context for Language Development: Opportunities and Challenges

**María Guadalupe Arreguín**  
*University of Texas at San Antonio, USA*

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### ABSTRACT

In this qualitative study, the author investigated nature as a context for language development. Participants included 15 toddlers and their caretakers who enrolled in a series of environmental education workshops on the topics of grass, butterflies, spiders, and leaves. Using field notes and photographs, the study sought to investigate elements in nature that prompted children and adults to initiate episodes of joint attention as well as challenges and opportunities for language development within the context. Findings indicate that children gravitated towards insects while adults were more inclined to discuss plants. It was also found that certain arachnids and insects such as butterflies offered limited opportunities to generate labels/vocabulary and did not afford a close relationship or connection with toddlers

**Keywords:** early childhood, environmental education, biophilia, language, nature

Young children's language development has been at the heart of studies seeking to address the important role that meaningful experiences and interactions play in equipping children with knowledge of all aspects of language so that they can advance socially and academically (Justice et al., 2010; Mashburn et al., 2008). Language development, however, is a complex process as young children require more than meaningful experiences to build a repertoire of receptive and expressive language. In other words, language knowledge is strongly influenced by the quantity and quality of language that is directed to children in relation to their interests and actions and how much the young child is involved in extension activities (National Academies of Sciences, Engineering, and Medicine [NASEM], 2017).

Congruent with a developmentally appropriate perspective that favors concrete, meaningful activities in which children use their senses to explore, learn, and develop language (Kostelnik, Soderman, Whiren, & Rupiper, 2019), environmental scholars suggest that educators should capitalize on children's innate inclination to connect with nature, or biophilia (Kellert, 2012; Wilson, 1993) to support learning in all domains, including language (Kellert, 2002). Biophilia is a construct that has been discussed in terms of a symbolic dimension that highlights nature as a "source of language and imagination" (Kellert, 2002, p. 130). In doing so, the wheels of language and cognition and set into motion. Specifically, Shepard (1993) asserts that the initial awareness of animal taxonomy so prominent in early childhood, a time when the child notices body parts (e.g., nose, eyes, mouth, toe) represents only the beginning of a natural inclination inherent in human beings to use nature as a source and instrument to develop the many dimensions of language.

The cognitive aspects of the nature-child relationship have been addressed under a cognitive biophilia construct, a term that Lawrence (1993) coined to encapsulate the idea that symbols and images of nature propel complex thinking. As Kellert (2002) asserts "few areas of life provide young people with as much opportunity as the natural world for critical thinking, creative inquiry, problem-solving, and intellectual development" (p. 124). This process begins with a foundation that relies on a series of labels gradually acquired as children begin to walk, talk, and ask the name of objects and organisms that they encounter (Shepard, 1998).

Addressing language development in the context of nature is important as knowledge of purposeful strategies can assist parents and educators in their efforts to support language acquisition and development beyond the constraints of a classroom or a home. The purpose of this qualitative descriptive study was to identify child and adult initiated episodes of joint attention at a local park within the context of a Starting Out Wild (SoW) environmental education workshop. A qualitative approach was used to understand and tap into young children's inclination to connect with organisms found at a local park as a way to promote language development.

### **The Context: Starting out Wild (SoW)**

SoW is a toddler/parent environmental education program tailored for children ages one to three years that was launched in 2013 at a park in South Texas. SoW lessons involve children and their caretakers in direct and indirect experiences with nature. Much of the content of each one-hour workshop was based on Growing Up WILD (Wildlife in Lesson Design) and Project WILD curriculum guides. A SoW lesson includes several segments. Initially, children gather for a welcome song and an introduction to the topic of the workshop, which includes a read aloud. Then, a nature walk with parents and children allows time for application and exploration. Next, following the theme of the day, all participants complete a craft and have a snack. Finally, a good bye song and/or a discussion help to bring closure (see Table 1 for sample schedule). During the Fall 2019 when this project took place, program coordinators planned four workshops based on the topics of grass (August), butterflies (September), spiders (October), and leaves (November). Aspects of the first three workshops are discussed in this article.

Table 1  
*Sample SoW Schedule for the Topic of Grass*

	<b>Language</b>	<b>Activity</b>
First 15 minutes	Spanish	Introduction Show several samples of grass. Allow children to touch the grass and ask: ¿Who ate grass today? Read aloud: "Tall, tall grass" by Denise Fleming. Who lives in the grass? Let's go find out!
Second 15 minutes	Spanish	Nature Walk Name parts of the grass including stem, leaves, flower, and seeds. Provide scripts to parents to encourage use of topic related vocabulary. Focus on 3 language input strategies.
Third 15 minutes	English	Craft
Fourth 15 minutes	English	Closure Review what was observed and summarize lesson.

A bilingual version of SoW was conceptualized in coordination with the education coordinator, Cindy (pseudonym), at the park. The goal was to better serve the increasing number of Spanish-speaking young children and their parents. The project also sought to better understand how nature can serve as a vehicle to promote young children's language development in a bilingual/dual language environment. With this in mind, a 50/50 language allocation model was designed. Language allocation refers to the distribution of languages for instructional purposes. In this case, the decision was made to conduct the first half of the class in Spanish and the second half in English. Because Spanish was, in many cases, the child's first language, an initial exposure to the concept in a familiar language can support comprehension and subsequent transfer of concepts and vocabulary to their second language (Cummins, 2017).

Children aged between one and three years do not necessarily engage in formal language production or expressive language to a significant degree. Therefore, data collection focused on observations of children's engagement and expressed interests while participating in the nature walk (second 15-minute segment of the program as described

in Table 1). Additionally, the study explored opportunities and challenges for language development within the workshop placing adults in the role of facilitators and providers of language input.

### **SoW Workshops within Fields of Promoted Action**

During the different phases of the workshop, facilitators purposely emphasized the topic of the day and encouraged children to observe and use their senses to explore. The nature walk immersed children in fields of promoted action (Chawla, 2007), which can be defined as the conditions in which children's exploration of nature occur under adult encouragement and close guidance. In this case, adults purposefully incited exploration of a specific plant or small animal.

The field of promoted action generally involved a well-defined perimeter. The nature walk began in the area right outside the classroom. Then, the walk continued across the parking lot and next to the pollinator garden. Finally, participants made full circle by returning to the savanna area. This 15-20 minute experience was marked by multiple stops in which promoted action included:

- looking at organisms that related to the lesson being taught on that day;
- drawing attention to organisms that adults found interesting (often related to workshop's topic); and
- discussing and extending organisms and affordances that children identified as interesting and that adults deem safe.

Parents received a handout with suggested ways to provide language input as children entered those fields of promoted action. Facilitators and parent sought to expose children to rich, context-based vocabulary. Strategies provided to parents in an index card or handout included:

1. labeling objects/organisms that children found interesting;
2. purposefully labeling objects or concepts related to the focus of the lesson (parts of a spider);
3. extending children's utterances;
4. encouraging exploration; and
5. asking open-ended questions.

These strategies allowed facilitators to operate under a guided inquiry approach by directing children's attention to specific organisms and objects in nature that each lesson focused on. We understood that children would also initiate conversations/or engage in actions connected to anything that invited a relationship as they walked the trails.

### **Theoretical Framework**

This study used biophilia as a framework to better understand and analyze nature as a valuable source of symbolic experiences and as a vehicle to facilitate communication, thought, and language. Wilson (1984) defines biophilia as a biologically based, inherent human need to affiliate with life and life-like processes. In general, Kellert (2002) classifies contact with nature under three categories: direct, indirect, and vicarious or symbolic. A direct experience with nature involves spontaneous play or exploration of unmanaged natural spaces such as a backyard, vacant lot, a mountain, etc. Indirect experience with nature is generally more restricted and often leads to physical contact, but is programmed, monitored, and closely managed as is the case in zoos, nature center classes, guided trail tours, etc. A symbolic or vicarious experience with nature exposes children to images or symbolic depictions of nature including animals, plants, and non-living things.

For young children participating in the SoW workshop, the combination of concrete, symbolic, and indirect experiences in nature promoted cognitive and linguistic engagement at high levels. Lawrence (1993) used the term cognitive biophilia to assert that "the human need for metaphorical expression finds its greatest fulfillment through reference to the animal kingdom. No other realm affords such vivid expression of symbolic concepts" (p. 301). This

type of connection with nature is inherently connected to experiences in which one can use the senses to gain awareness and subsequently act or react in relation to nature and move our reasoning forward.

Extending the idea of nature as a trigger of cognitive activity, Arreguín-Anderson (2015) proposed the term linguistic biophilia to assert that children's natural gravitation toward nature in at an early age can also provide opportunities to learn an ample vocabulary. This newly acquired terminology eventually evolves into "the child's linguistic repertoire and is accompanied by morphemic and syntactic knowledge when the adult purposefully uses more complex sentences" (p. 53). A nature walk or exploration of a natural space such as a trail in a park for example, immediately exposes a child to objects, organisms, or referents in need of a label.

Exposure, however, does not guarantee engagement. Key to child-nature connection is the presence of affordances. Affordances in nature are powerful tools to develop language and cognition. Chawla (2007) describes affordances in terms of relationship that can emerge between the child and an object or organism. A roly poly bug (isopod crustacean), for example, provides a unique type of affordance in nature. As it moves about and airs the soil, the roly poly affords the opportunity to be observed. Rocks that are small enough to be picked up, examined and played with afford opportunities to enact the sense of touch and just as importantly, these objects and organisms propel a sense of wonder and enjoyment.

From a sociocultural perspective, however, the wheels of language learning/development as children engage with nature's affordances must be set into motion by a "more knowledgeable other" (Vygotsky, 1978) in this case peers or adults in children's lives. Initially, however, a child must become interested in an object or organism in episodes that child either initiates or is enticed to engage in. These episodes of joint attention (Chawla, 2007) allow adults to produce contingently responsive language (NASEM, 2017) or language that is closely connected to the child's interest in the exact moment when both, child and adult, make eye contact in relation with the object/organism.

Episodes of joint attention represent moments in time in which two individuals pay attention to the same object/organism. These episodes can generate multiple opportunities for language (vocabulary) development in the form of labeling, discussing, comparing and questioning. A generative word leads to the naming and discussion of additional aspects or details related to the object/organism/action. In the context of nature-based play, generative words relate directly to affordances within nature, that is, objects or organisms that the child is spontaneously attracted to and can establish a relationship with.

### **Review of Literature: Nature and Language**

Research has shown that the relationship or assumed affiliation that children can experience towards nature may be influenced by the amount of time spent outdoors and the aversion or affinity with nature that adults and other individuals model or demonstrate in the presence of children (Ballouard, Provost, Barre, & Bonnet, 2012; Chawla, 2007; Kahn, Weiss, & Harrington, 2018; Kharod, 2017; Rice & Torquati, 2013; Zhang, Goodale, & Chen, 2014). Kharod and Arreguín-Anderson (2018) explored how participation in a nature preschool mediated preschoolers' caring attitudes and behaviors towards and connection with nature. Findings shed light on the role of direct experiences along with interactions with caring adults and curious peers play in a gradual progression from aversion to affinity with nature.

In addition, adults and peers are a key factor in terms of the knowledge children acquire and the language they develop both in the presence or absence of nature as a stimulus. Nature schools for example, have capitalized on parents' desire to immerse their children in curriculum that develops all learning domains using nature as a context for learning (Arreguín-Anderson, 2015; Bailie, 2016; Dell, 2018; O'Brien & Murray, 2007; O'Brien, 2009).

Although still scarce, an emerging body of environmental education research has started to focus on young children's communication skills and vocabulary growth. In a study with younger children at a nature preschool, Dell (2018) used participatory methodology to explore how young children ages (3-4 years) attending preschool described their learning experience. Data collected included children's photos and descriptions as they engaged in their daily activities. One segment of the findings indicated the presence of scientific knowledge/language in the photographs'

caption. As evidenced in these pictures, children learned the names of plants and animals in their local ecosystem. Acquisition of scientific terminology has also been identified in Forest schools. For example, O'Brien and Murray (2007) investigated the impact of Forest Schools on 24 children over an 8-month period and identified language and communication as a significant theme. Specifically, the researchers highlighted young children's sophisticated uses of written and spoken language (vocabulary and syntax).

### **Methods**

This basic qualitative study sought to explore the role of nature as a space for language development in the context of parent-toddler participation in a bilingual SoW workshop. The goal was to identify instances of child-initiated and adult-initiated episodes of joint attention in relation to affordances within the nature trail. Merriam (2009) describes basic qualitative research as an inquiry in which one closely looks at how people "construct their worlds". In this case, special attention was paid to the meaning-making experience as parent/caregiver and young child interact with nature in a context of guided inquiry. The study sought to answer the following research questions:

1. What elements of nature are young learners spontaneously drawn to as they initiate episodes of joint attention in the context of an environmental education workshop at a local park?
2. What elements of nature are adults spontaneously drawn to as they initiate episodes of joint attention in the context of an environmental education workshop at a local park?
3. What are opportunities and challenges for the use of contingent responsive language during a bilingual SoW workshop with toddlers at a nature park?

### **Setting and Participants**

This study took place at sustainable natural urban park located in south central Texas. The participants were selected from a convenience sampling pool that included parents/caretakers and children who attended one or more of a series of four bilingual SoW workshops offered at a local park from August to November during the Fall 2019 semester. Participants included 15 children ages one to three years with varied levels of language development. Seven of the participating children had Spanish surnames and spoke Spanish as their primary language.

The park where the study took place covers more than 330 acres. Nature trails highlight different landscape areas including a savanna loop, an oak loop, water loop, and a geology trail. Given the duration of the workshop (one hour), activities were generally planned near the savannah loop trail and close to the native plant demonstration garden. Two volunteers and an environmental education facilitator set up materials for each workshop on Thursdays.

### **Data Collection and Analysis**

Field notes, audio-recordings, along with photographs, allowed the researcher to capture children's spontaneous behaviors as they walked the trail, completed a lesson related craft, and listened to a story. A consent for participation was obtained from parents prior to the beginning of the series of workshops with the understanding that parents/caretakers' and children's verbal and non-verbal engagement with nature would be documented. The goal was to critically evaluate the types of opportunities for language development that emerged during the nature walk as children spontaneously explored and walked the trails with their parents/caretakers.

The process of data analysis began on day one as photographs, audio recordings, and observations were coded to group/categorize children's behaviors in relation to nature (both self-initiated and prompted) while identifying opportunities for language development. Using a constant comparison approach (Merriam, 2009), the researcher analyzed field notes in terms of:

- Children's spontaneous engagement with organisms (plants and animals) and other affordances within the nature walk.

- Adults' spontaneous identification of and engagement with organisms (plants and animals) affordances within the nature walk) and challenges/opportunities to develop language.

When children gravitated toward an object/organism in the park, these selections were coded as a category labeled "children identified affordances". This emerging code remained as a constant throughout the different workshops. Additionally, a predetermined code based on the purpose of the study was "opportunities for language input", which explicitly tied to adult initiated episodes of joint attention. Creswell (2014) asserts that a combination of emerging and predetermined codes may help capture information learned during data analysis as the researcher defines themes or categories for a research study. In this case, it was specifically critical to document the type of dynamics that naturally favored language development. It was evident that we needed to capitalize on children's identified affordances. Therefore, using a balanced approach, we remained alert to adult's interventions and adult's initiated episodes of joint attention.

### Findings

Research Question 1: What elements of nature are young learners spontaneously drawn to as they initiate episodes of joint attention in the context of an environmental education workshop at a local park?

#### **Child Initiated Episodes of Joint Attention: One Cooperating Beetle!**

The toddlers in this program identified multiple elements or affordances, within the nature walk, that generated episodes of joint attention. Most affordances related to insects and included a beetle, a grasshopper, a queen butterfly, a dragon fly, and a stink bug. This is a crucial aspect of young children's behavior and biophilic inclination as it confirms the role that nature can play as a trigger for learning in all domains. Experiences in nature that children find interesting are precisely the type of opportunities that adults can capitalize on to produce contingently responsive language input. The importance of the language that adults use in response to children's spontaneous attraction to organisms in nature is related to "children's ability to learn words for things and events that interest them and are already the focus of their attention" (NASEM, 2017, p. 133).

Congruent with previous research (Lindemann-Matthies, 2005; Wandersee & Schussler, 1999), one common pattern during the workshops was children's spontaneous attraction and preference of animals over plants. In this case, children were overwhelmingly attracted to insects that happened to crawl, fly, hop or just move coinciding with their path. This type of organisms, that Chawla (2007) refers to as "responsive affordances" (p. 15) fascinated children because as they engaged, these insects' further actions (e.g. flying, crawling) caused additional curiosity.

During the first workshop, we gathered samples of grass to illustrate that grass comes in different shapes, sizes, and colors. We also discussed the fact that we eat products from grass at home and shared with children that insects also enjoy the benefits of using grass as shelter. With this in mind, the goal of the nature walk was to guide children in the appreciation of the different types of grass found in the park. We asked parents/guardians to guide their interactions using the following open-ended questions: Where can we find grass? What does it look like? And what lives there? These questions would serve as focal points and wide nets to capture possible inquiries as the nature walk progressed. It was precisely in looking for what lives there? That children happened to observe ground black beetles near pasture areas of the park. Beetles are insects with three pairs of legs, and a hardened pair of wings. Workshop facilitators explained that beetles can be easily found in almost any habitat so it was no coincidence we spotted them on the sidewalk near the grass.

#### **Contingently Responsive Language to Capitalize on Children's Observations**

Children were mesmerized by the beetles' slow pace as they climbed small rocks and crossed the path towards more dense vegetation areas. This insect did not seem disturbed when picked up and placed on one of the facilitator's hands. Due to its smallness and quiet demeanor, this beetle afforded interaction. As it moved with ease, children observed closely and intently how the claws on the beetle's hind, middle, and fore legs helped it attach to the skin while maintaining balance (see Figure 1).



*Figure 1. A black beetle at the park*

In this case, affordances, such as the beetle, became a generative topic that also afforded conversations and propelled language production often leading to the use of more specialized terminology. For example, the beetle's head and thorax presented opportunities for close observations and as children followed the beetle's every move, other names of body parts emerged: "Mira sus antenas... Tiene un abdomen muy grande." (Look at its tinny antennae...It has a large abdomen.) Even as the group walked away, children were seen pointing to the insects while parents elaborated with phrases such as: "That was a beautiful insect, right", and "¿En qué se parece tu cuerpo al cuerpo de un insecto?" [In what ways is the beetle's insect similar to yours?]" Once observations were made, the beetle was softly pushed back on the ground near the grass to continue its journey.

Research Question 2: What elements of nature are adults spontaneously drawn to as they initiate episodes of joint attention in the context of an environmental education workshop at a local park?

### **Nature's Toilet Paper! Plants as Opportunities/Affordances to Develop Language**

As indicated in the schedule of each workshop, facilitators used concrete objects and read alouds to draw children's attention and provide a focus for the day's activities. This approach was effective within the confines of the classroom. However, once the group stepped out and into the trail to explore the topic, facilitators embraced a flexible approach promoting children's curiosity (as indicated in finding one), but also capitalizing on affordances present in the trail as the group walked towards specific areas of the park. As opposed to children, who were attracted to animals (insects), a pattern in these workshops was adults' inclination to discuss and draw attention to plants.

For example, one episode of joined attention centered on what education coordinator, Cindy, called "nature's toilet paper", or velvet leaf mallow, a shrub that can reach 3-5 feet in height (see Figure 2). The plant's heart-shaped leaves are velvety to the touch and might have easily gone undetected if it wasn't that during one of the nature walks, Cindy stopped; pointed to the plant; approached it and encouraged children to touch it by saying: "This is Cindy's



toilet paper.” Given its size and length (with issues of safety in mind), this plant allowed physical contact and the use of the sense of sight and touch. In other words, it afforded a relationship and connection to the child’s interests (Gibson & Pick, 2000). Generally, objects and living organisms found in nature are likely to lend themselves for interactive encounters contingent on physical aspects of the organism such as proximity, size, and height. A rule of thumb is to consider organisms that engage the senses and are situated at eye level. As White and Stocking (2008) assert “children judge nature not by its aesthetics, by the manner of their interactions and sensory experiences with it” (p. 2).



*Figure 2. Nature’s Toilet Paper*

To encourage use of the senses while providing contingently responsive language, parents approached the plant, felt its smooth texture, and invited children to do the same while saying “suave [smooth]”. Immediately, children proceeded to touch the surface of the leaf while smiling. This episode of joint attention led to the use of additional words such as *textura* (texture), *suave* (soft), *liso* (smooth), *ancho* (wide), *delicado* (delicate), *terciopelo* (velvet), and *velvet-leaf mallow*. These labels were provided by Spanish speaking parents and lead facilitator in the context of descriptive phrases such as: “Mira que lisa se siente la hoja” [See how smooth the leaf feels] and “Its texture reminds me of velvet”.

Toddler’s fascination with the velvet-leaf mallow shrub proved that adult-initiated episodes of joint attention in nature are also likely to successfully engage children in physical and linguistic exploration when the selected organism or object represents a true affordance for the young child. That is, the selected object/organism supports physical contact and a close relationship.

A more distant experience however, occurred when we attempted to discuss grass with children while on the trail. Researcher and facilitators knew that varied types of grasses were found in the park. However, given their inaccessibility in relation to children’s ability to reach them, we gathered several types of grass and brought them to the classroom as a hands-on focusing activity, knowing that later, we would probably limit this experience to observing from the sidewalk (see Figure 3). Although touching the different type of grass in the classroom seemed to amuse children, the experience was removed from its natural context as we walked the trails. Once outside, issues of safety prevented us from allowing children to freely wander in the grass.





*Figure 3. Observing grass from the sidewalk*

Research Question 3: What are opportunities and challenges for the use of contingent responsive language during a bilingual SoW workshop with toddlers at a nature park?

### **The Challenge to Connect with Butterflies and Spiders: Generating Episodes of Joint Attention with Unresponsive Insects**

Two of the topics of study during the SoW workshops included butterflies and spiders. These topics represented a challenge in terms of the relationship and proximity they could afford. Affordances are key to the discussion of nature as context for language development. A spider for example may emerge in close proximity to a child, but it does not afford a relationship beyond that of a close observation. As Heft and Chawla (2006) point out “children are more likely to stay attentive and engaged when features of their environment that they notice are responsive and give them immediate, pleasurable feedback...” (p. 151). This was not necessarily the case with the spiders and butterflies that young children encountered at the park. During our nature walk butterflies and spiders were unresponsive to a significant degree and their presence was unpredictable during the fall semester when this study was conducted.

In preparation for the spiders’ workshop for example, the lead facilitator visited the park the day before to locate spiderwebs and spiders around the perimeter generally covered during the nature walk. Fortunately, the presence of spiderwebs in areas near the ground and a black and yellow Garden spider (see Figure 4) allowed us to continue our plan to at least show spiders to children. Only one spider allowed adults to generate episodes of joint attention or moments in which both adult and child actually could engage in conversations related to the spider. For example, when children seemed curious about the spider’s head, the lead facilitator responded by saying: “Oh, what do we have here? I see a combined head and thorax...or cephalothorax. Wow! We are learning so much! Point to your own head and your thorax!

Additionally, the spider presented opportunities to name prominent body parts including the cephalon-thorax, the abdomen, and the eight legs, which we counted one by one. Given the limitations, this small encounter was significant because in general, adults and children tend to avoid unresponsive, small invertebrates such as insects and spider (Kellert, 1993).



Figure 4. Garden spider at the park

The topic of butterflies, proved to be more challenging than spiders. Because the number of butterflies present at the park was relatively small and only few landed near us, it was difficult to involve children in episodes of joint attention. The limited or non-existent opportunities to engage young children in open-ended, hands-on, sensory experiences during the butterflies workshop had a negative impact on the amount of descriptive language and labeling that adults were able to use (see Table 2).

Table 2

*Affordances related to Spiders and Butterflies*

Affordances	Spider	Butterfly
Sensory experience	No	No
Close observation	Yes	No
Opportunities to investigate	No	No
Words generated through purposeful naming	Head, cephalothorax, abdomen, legs, and spiderweb.	Wings, orange, and flower.

### Conclusions and Implications

Young children are naturally curious and inquisitive. Therefore, learning that encompasses all domains including language occurs best when opportunities for active hands-on engagement are purposefully designed. This study sought to examine ways in which an environmental education workshop involved young learners in episodes of joint attention with the specific goal of developing language. That is, we sought to identify elements in nature that enticed participants to engage, discuss, and learn. With this in mind, we explored affordances present at a local park that parents and their toddlers found interesting and worth exploring.

Young children spontaneously gravitated towards animals, specifically insects, present along the path in the nature trail during a series of SoW workshops. This is important because it confirms the critical role that responsive affordances such as moving insects play in the establishment of meaningful relationships between young children and nature (Chawla, 2007). This urges environmental educators at local parks to seriously consider the design of workshops where local species of animals are featured and purposefully embedded as topics of study. Insects such

as beetles, can spark multiple episodes of joint attention. This purposeful identification of responsive affordances aligns well with a guided inquiry approach, leading child, parent, and educator to learn more about elements of the local habitat.

Under a developmentally appropriate perspective, initiatives that seek to truly connect with children will move beyond the initial cataloguing and mapping of local organisms to a consideration of these organisms in relation to the affordances they represent for young children. The beetle for example, afforded observing, following, describing, and picking up. A butterfly on the other hand, would not necessarily merit a space in the catalogue given its relatively rare presence during the season of the year when workshop takes place. It was noted that affordances related to butterflies were close to non-existent; therefore, not relevant for the young child. Only readily available affordances can potentially spark engagement and are congruent with a generative approach to language development. To increase the likelihood that children will find an organism appealing and interesting, it will need to be responsive and afford proximity.

The findings illustrate that a balanced approach that promotes child-initiated explorations in combination with adult-guided inquiry is critical to programs that seek to promote a long-lasting connection with nature while encouraging learning in all domains. Children's inherent agency and inclination to affiliate with nature can be the driving force behind initiatives that seek to enhance language development at an early age.

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