

## ORIGINAL ARTICLE

## Learning to walk in the forest

Sheina Lew-Levy<sup>1</sup>  | Adam H. Boyette<sup>2</sup> 

<sup>1</sup>Department of Psychology, Durham University, Durham, UK

<sup>2</sup>Department of Human Behaviour, Ecology, and Culture, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

**Correspondence**

Sheina Lew-Levy, Department of Psychology, Durham University, Durham, UK.  
Email: [Sheina.lew-levy@durham.ac.uk](mailto:Sheina.lew-levy@durham.ac.uk)

**Abstract**

This paper examines how BaYaka children from the Congo Basin learn to “walk in the forest” (*botamboli na ndima*). Specifically, after placing forest walking within historical and ethnographic context, we consider how this practice contributes to BaYaka motor, cognitive, and social development, and thus, to the acquisition of culture. To do so, we draw from our own observations and those of other researchers working throughout the region. We outline four ways in which “walking in the forest” is directly and indirectly socialized: through motion-full caregiving in infancy, play and cooperative foraging in early and middle childhood, and exploration in adolescence. Taking “walking in the forest” as a focal point, we argue that the specific ways in which caregivers enhance learning are grounded in BaYaka subsistence and forest management practices, and that learning to walk in the forest is central to the maintenance of BaYaka social networks and the flow of knowledge in the Congo Basin.

**KEYWORDS**

autonomy, Congo Basin, hunter-gatherers, motor development, socialization

**Resumé**

Cet article examine comment les enfants BaYaka du bassin du Congo apprennent à « marcher en forêt » (*botamboli na ndima*). Plus précisément, après avoir placé la marche en forêt dans un contexte historique et ethnographique, nous examinons les façons dont cette pratique contribue au développement moteur, cognitif et social des BaYaka, et ainsi, à l'acquisition de la culture. Pour ce faire, nous nous appuyons sur nos propres observations et celles d'autres chercheurs travaillant dans la région. Nous décrivons quatre façons dont la « marche en forêt » est socialisée directement et indirectement : par les soins actifs durant la petite enfance,

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le jeu et la recherche de nourriture coopérative pendant la petite et moyenne enfance, et l'exploration pendant l'adolescence. En prenant la « marche en forêt » comme point focal, nous soutenons que les manières spécifiques dont les soignants favorisent l'apprentissage sont ancrées dans les pratiques de subsistance et de gestion forestière des BaYaka, et que l'apprentissage de la marche en forêt est essentiel au maintien des réseaux sociaux BaYaka et à la transmission des connaissances dans le bassin du Congo. [Mots clés: autonomie, Bassin du Congo, chasseurs-cueilleurs, développement moteur, socialisation]

## INTRODUCTION

This paper examines how BaYaka children from the Congo Basin learn to “walk in the forest” (*botamboli na ndima*). For BaYaka, forest walking is not simply a motor act. As one interlocutor explained, “to walk in the forest, your eyes go on the ground, your eyes go in the trees.” In other words, walking in the forest involves keen attention to one’s surroundings. Walking in the forest also has social dimensions. Walking is usually done in the company of others. It is by walking along the extensive network of forest trails that BaYaka travel to distant camps or villages. These movements are central to the economic exchange of forest spirits (Lewis, 2015), to the flow of information (Hewlett, 2013), and link families together through marriage (MacDonald & Hewlett, 1999). By focusing on the development of BaYaka forest walking, we aim to shed light on how BaYaka children’s situated motor development, and the opportunities for direct observation this engenders, ultimately contributes to culture acquisition (Adolph & Robinson, 2015; Ingold & Vergunst, 2008; Lye, 1997).

## ETHNOGRAPHIC AND HISTORICAL PERSPECTIVES ON BAYAKA FOREST WALKING

The ethnonym “BaYaka” refers to several groups living throughout the Congo Basin including in the Republic of the Congo (Bayaka, Mbendjele, Baluma, Mikaya, Ngombe/Baka), Central African Republic (Bayaka, Bofi), and Cameroon (Baka). Despite linguistic differences, these communities recognize their shared cultural practices (Köhler & Lewis, 2002). In this section, we review studies primarily conducted in northern Republic of the Congo and the Lobaye prefecture of Central African Republic, reflecting the regional focus of our analysis. Further, we focus here on ethnographic accounts which echo and expand our own observations of, and discussions with, our interlocutors.

BaYaka refer to themselves first and foremost as forest people (*bato ba ndima*) (Bombjaková, 2018; Hewlett, 1991; Lewis, 2002). BaYaka maintain intimate, aesthetic, and emotional relationships with the forest (Bombjaková, 2018; Hewlett, 1991). Reflected in the BaYaka proverb “a Yaka loves the forest as s/he loves her/his own body,” BaYaka view themselves and the forest as “inseparable, part of each other, an organic whole” (Lewis, 2002, 89). The forest is viewed as cool, peaceful, safe, and abundant (Bombjaková, 2018; Lewis, 2002). BaYaka collect fruit, yams, nuts, greens, and mushrooms; capture prey with traps, spears, and shotguns; and fish in forest ponds (Kitanishi, 1995). BaYaka also maintain small low-input gardens in which maize, plantain, taro, and manioc are grown.

Most forest-based subsistence activities are considered by BaYaka as falling under the umbrella of “forest walking.” When asked what they are off to do, someone heading into the forest often simply responds

“I’m going walking” (*me dwa botamboli*), returning later with tree fruit, a porcupine, or any of a great variety of other resources. While moving through the forest, BaYaka walk with pride (*digondo*). Standing tall with an outward posture, BaYaka move deftly and fluidly (Vittoria, 2022). Keeping their heads up, BaYaka gaze far ahead along the trail as they walk, surveying the forest for animal tracks, tuber vines, and ripe fruit. They listen, too: for rustling leaves indicating the presence of a human or animal, or for bird calls signifying the presence of certain plants and animals (Ichikawa, 1998). While in groups, women’s walking is often accompanied by raucous laughter, polyphonic singing, and gossip (Lewis, 2016). As they pass abandoned camps and seasonally abundant resource patches, BaYaka discuss the people and activities which occurred there in the past, contributing to the “topographic gossip” (Widlok, 1997) through which they come to develop mental maps of their landscape.

Walking is also central to how BaYaka manage the risks they encounter in the forest. As researchers, we have often been told that we do not know how to walk in the forest, or that we do not walk well. As a result, the BaYaka with whom we have travelled constantly reminded us to walk slowly (*namana*), pointing to roots, mud, biting ants, and venomous snakes which were often invisible to our untrained eyes. When asked why he was so concerned about the second author’s wellbeing while walking along the trail, a BaYaka companion simply responded: “because it’s the forest!” (*mondo na ndima!*). This reflects the tacit understanding that the forest *can* be dangerous, but that walking and the keen attention it engenders ensures that one can move through it safely.

The BaYaka with whom we work spend approximately 3 to 6 months of the year in forest camps, and the remaining year living in larger multi-ethnic villages where they trade with and labor for farmers (*bilo*) with whom they maintain fictive kin relations (Grinker, 1994; Komatsu, 1998). In contrast to the forest, the village is conceived of as hot, noisy, and dangerous (Lewis, 2002). For BaYaka, time spent in the village is often strategic, reflecting opportunities to access resources controlled by farmers, wage labor, and to participate in seasonal commemoration ceremonies for which a critical mass of participants is required (Lewis, 2008a; Bombjaková, 2018). While in proximity to farmers, BaYaka appear shy, talk quietly, and keep their eyes on the ground (Hewlett, 1991; Vittoria, 2022). Women can often be seen hunched over, carrying large baskets of manioc or firewood to farmers. These humbled postures are abandoned as soon as BaYaka find themselves in their own company. While outside the scope of the present paper, we acknowledge that learning to walk in the village is also central to BaYaka lifeways and intercultural engagement.

BaYaka social relationships are regulated by widespread and generalized sharing (Kitanishi, 1998), egalitarianism (Lewis, 2008b), and autonomy (Boyette & Lew-Levy, 2021; Hewlett et al., 2011). As among Malaysian Batek (Endicott, 2011, 11), BaYaka autonomy is not individualistic but instead “based on a combination of obligations to the group and protections for individuals against coercion by others.” Moïse (2014, 2011) also notes that Congo Basin forest peoples’ political culture is entrepreneurial, in the sense that individuals display openness to new knowledge, social relationships, and resources. Mobility generally and forest walking specifically fuels both the pursuit of autonomy and entrepreneurialism, thus contributing to cultural maintenance and change for BaYaka and the region over historical time. For example, Bantu origin myths conceive of BaYaka ancestors as guides who aided these newcomers in learning about local resources and geographies as they migrated into the region between 4000 and 1500 BCE, according to researcher estimates (Klieman, 2003; Vansina, 1990). This period is considered a golden age in BaYaka oral history (Moïse, 2014), and implicitly highlights the contribution of forest walking and associated knowledge to the Bantu expansion. Subsequently, Bantu specialization in the cultivation of bananas and the production of iron estimated at between 500 and 1500 CE, and later social evolutionary theories adopted from European colonists, has led to the marginalization of BaYaka (Klieman, 2003; Moïse, 2014; Vansina, 1990). In this context, mobility has empowered BaYaka to abandon coercive relationships with farmers (Lewis, 2002; Moïse, 2014), either by finding refuge in the forest (Hewlett, 1991; Moïse, 2014), or by migrating to locations where they can forge more favorable alliances with new communities and access their resources (Lewis, 2008a). With the rise of logging and other extractive industries, BaYaka increasingly use forest walking to straddle foraging and wage labor, with some employment, such as prospecting, directly capitalizing on their forest walking skill (Lewis, 2002).

## BAYAKA THEORIES OF FOREST MANAGEMENT AND CHILD DEVELOPMENT

Across the world, childrearing is often likened to plant cultivation (Shwalb et al., 2010). During the Edo period (1603–1868), Japanese writers discussed tending to children as one would tend a tree; good caring would produce many branches and leaves, and deformed branches should be pruned, as should children's selfishness (Chen, 1996). Among the Chewa of Southern Africa, the metaphor “a tree is straightened when it is young” likens children to saplings (Serpell, 1996). Drawing from her 18 months of ethnographic fieldwork in the region where we work, Bombjaková (2018) explains that BaYaka view child development as an autonomous process of ripening. Like unripe (*botadie*) wild fruit, young children are viewed as “hard” (*budi*). The process of ripening cannot be forced, as each fruit ripens in its own way and in its own time. As they ripen, children like fruit become softer, sweeter, and fuller.

While cultivators modify plants themselves through pruning and straightening, BaYaka instead manage the environment surrounding plants to favor growth. Using a specialized tool, BaYaka carefully excavate *essouma* yams while leaving the terminal part of the tuber behind (Bahuchet, 2000; Dounias, 2000). The hole is refilled with a mixture of earth and humus, which is less compacted and richer in organic matter. This allows the tuber to grow back, while encountering less mechanical resistance (Dounias, 2000). Such paracultivation (Dounias, 2000) also applies to *mela*. While collecting *mela*, the first author observed a BaYaka adolescent girl reburying tubers which were too small to eat. While she did so, she explained to her younger cousin that this would help the *mela* grow back in the future. Religious activities also contribute to abundance; laughter, joy, and ritual acts of harmony and cooperation such as during *mokondi massana* (forest spirit play) are viewed as sharing beautiful and pleasing sounds with the forest. In turn, the forest becomes generous and opens itself, thus making available hunted, gathered, and fished resources (Bombjaková, 2018, 188; Lewis, 2002, 97).

Similarly, BaYaka caregivers believe that under the right conditions and with the right encouragement, children's ripening process can be accelerated. Bombjaková (2018; see also Sonoda et al., 2018) interprets several practices as contributing to BaYaka children's ripening. During *mosambo* (speeches), and *moadjo* (reenactments), community members organize labor and call attention to norms by publicly shaming those who break them. Participating in *mokondi massana* also helps children ripen by emphasizing cooperation and joy (Bombjaková 2018; Lewis 2002). *Gano* (sung fables) weave moral lessons and ecological knowledge together during evening storytelling (Motte-Florac, 2012). In our own past work, we found that BaYaka caregivers fostered cooperation and skill development by assigning children tasks, yet granted children the autonomy to comply with, or ignore, such tasks (Boyette & Lew-Levy, 2021). Importantly for the present paper, Bombjaková (2018, 88) views accompanying (*tomba*) as a socialization device through which knowledge of fauna, flora, and wayfinding can be shared by facilitating first-hand experience with the forest. Just as loosening the soil and replanting tuber parts gives tubers a rich environment in which to grow autonomously, the aforementioned cultural institutions and practices provide rich opportunities for listening and attending to the lessons contained therein—should the child so wish. In what follows, we will consider how the practice of walking in the forest contributes to BaYaka children's growth and learning—or, from the perspective of Bombjaková's interlocutors, their ripening.

## THE PRESENT STUDY

This paper draws upon our ethnographic fieldwork in the Congo Basin. We have primarily worked with BaYaka living along the banks of the Motaba river in the Likouala department of the Republic of the Congo. The research area is remote, with no roads currently leading to settlements (Boyette et al., 2022). BaYaka in this region spend approximately 6 months of the year based in multi-ethnic villages, from which they participate in wage labor and make day-long or multi-day trips into the forest to hunt, gather, and fish for themselves or for trade with Bandongo farmers. The remaining year is spent in extended family

or multi-family fishing and caterpillar camps. While an elementary school for BaYaka is available in the village, attendance is sporadic (Bombjaková et al., 2023). Children living in forest camps do not have access to school. Since 2015, we have focused on childhood foraging, learning, and caregiving in a village setting and in its satellite forest camps (Boyette et al., 2020; Boyette & Lew-Levy, 2021; Lew-Levy, Boyette, et al., 2020; Lew-Levy, Kissler, et al., 2020; Lew-Levy et al., 2019, 2021). The first author has also investigated adolescents spear hunting acquisition (Lew-Levy et al., 2021, 2022).

In addition, the second author has worked with BaYaka living in or near Bagandou village in the Central African Republic. Referred to as “Aka” by researchers (plural: BaAka), Bagandou BaYaka speak a distinct dialect but share many cultural beliefs and practices with BaYaka living further south. The groups know the same *mokondi* forest spirit dances (Lewis, 2015) and there is some inter-marriage despite the distance. Bagandou is located along a road originally constructed to facilitate trade of rubber, gold, and animal skins, and that now leads from the regional center of Mbaiki to timber towns and missionary installations further east. During the time in which the second author worked there, there was a daily market in the village, and BaYaka increasingly earned cash through the sale of *Gnetum africanum* leaves to Ngandu farmers, who would sell it on the regional market. There was also a school financed by anthropologists at the community’s request, which operated for around 6 years until the civil war in 2012. Several BaYaka children, largely from those families living closest to the school, were consistent school-goers during this period. However, these children and their peers were still raised in the forest; their elders went to the forest daily; and during caterpillar season, their families would move to forest camps to stay typically for 3 months. Most of the second author’s observations of children’s learning were in the forest and with children who had never been to school (Boyette, 2016a, 2016b, 2019; Boyette & Hewlett, 2017; Boyette & Lew-Levy, 2019; Lew-Levy & Boyette, 2018).

Between 2016 and 2019, the first author conducted 14 months of fieldwork along the Motaba. The second author conducted 10 months of fieldwork between 2015 and 2022 along the Motaba, and 12 months of fieldwork between 2008 and 2012 in Bagandou. We employed multiple methods including structured observation, participant observation, surveys, and unstructured interviews to understand how BaYaka children learn and grow. Both authors are fluent in French (the national languages of Republic of the Congo and the Central African Republic) and conversational in Yaka (di.Aka). Our fieldwork was supported by research assistants fluent in Yaka, who helped us transcribe and translate direct quotes. That we were culturally and linguistically naïve participants at the start of our respective field visits made us especially sensitive to BaYaka childhood experiences (Fiske, 1997). We compensated for our poor walking skills by sharing resources (e.g., salt, tools, rice) with the camps and villages that welcomed us. That we became (second author) or were on the cusp of becoming (first author) parents during our fieldwork made salient BaYaka socialization practices. Finally, our respective genders gave us complementary access to gendered spaces, ensuring that both women’s and men’s voices are represented in our analysis.

Throughout our fieldwork, the importance of walking in the forest was regularly mentioned by interlocutors as a skill central to both BaYaka identity and subsistence practices. The cultural prominence of forest walking also emerges in the writings of other ethnographers working throughout the region (Bombjaková, 2018; Hewlett, 1991, 2013; Lewis, 2002; Vittoria, 2022). Building on our observations, here we provide the first in-depth analysis of this practice among BaYaka. Throughout the text we focus on shared meaning and common practices we extrapolated from our fieldwork. We acknowledge that this approach may overshadow individual diversity in BaYaka childhood experiences and socialization practices, and regional diversity in subsistence activities, access to the forest, and urban/rural dwelling. Where relevant, we contextualize our observations, noting when these were in forest camps (*lango*) or in villages (*mboka*), as these settlements offer different opportunities and incentives for forest walking. Where complementary or supportive to our own observations, we draw on those published by colleagues working in, or a forest-walk away from, our field sites. In what follows, we outline four ways in which “walking in the forest” is socialized: through motion-full caregiving in infancy, play and cooperative foraging in early and middle childhood, and exploration in adolescence.

## INFANCY: CAREGIVING IN MOTION

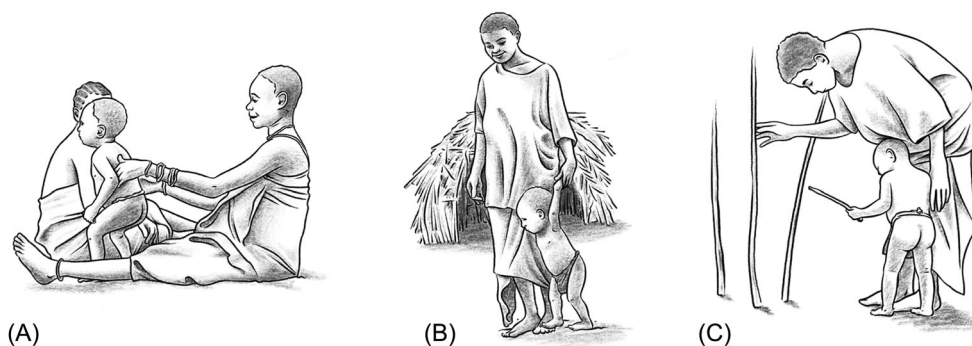
Entering a BaYaka camp, one is struck by a sense of motion. Children run from house to house, playing tag. Women pound palm nuts into oil while chatting. Men work to fix *djombi* hatchets or twist *mokosa* bark into rope, while smoking, roasting nuts in the *mbandjo* (men's meeting area) and discussing the day's hunt. Infants too are in constant motion. An infant may dose in her mother's lap while the mother grates manioc leaves to make *djabuka*. When she wakes, she may be passed to her father, who bounces her on his knee. A teenage girl may then fetch the infant, holding her against her hip while she plays a handclapping game with her friends. Hewlett (1991) in fact estimates that, while in camp, 1- to 4-month-olds are nearly constantly held, have an average of seven caregivers a day, and are transferred from one caregiver to another an average of 7.3 times an hour. Here, we describe how such "caregiving in motion" simultaneously supports the development of motor skills and keen attention.

There are few studies on BaYaka infant motor development. To our knowledge, only Neuwelt-Truntzer (1981) has measured the age at which BaYaka children meet a variety of motor milestones, comparing them against US benchmarks. She found that most 5-month-olds could sit without support, most 6-month-olds could crawl, creep, or hitch forward, and all 11-month-olds could walk independently. From 6 months onwards, BaYaka infants also scored highly on measures of object permanence, such as finding a covered object, and in their ability to use objects functionally, such as retrieving an object with a stick. Overall, Neuwelt-Truntzer concludes that BaYaka infant motor development is relatively advanced in comparison to that of American infants. It is important to note that the data reported by Neuwelt-Truntzer is from a relatively small sample collected in 1975–1977. Still, Neuwelt-Truntzer's findings concord with our own more recent observations; BaYaka infant motor development is precocious.

Much anthropological attention has been paid to the practice of carrying infants in slings (Hewlett, 1996; Konner, 1976; Lozoff & Brittenham, 1979). The lying-in period, during which BaYaka infants and mothers stay in or near the house, ends when the infant is about 3 months. From then on, infants are placed upright in a cloth sling or strap (more traditional bark straps are still sometimes used) on the mother or another caregiver's side (Hewlett, 1992). Until the infant has developed sufficient neck muscles to hold their heads up, the caregiver supports the head in the crook of their arm. By promoting neck muscle development (Siddicky et al., 2020), this upright positioning may contribute to infants' early ability to turn their head from side to side, allowing them to visually explore their surroundings. And, there's a lot to explore. From the sling, infants can look up at their caregiver's face, initiating an interaction with a smile or a coo. Infants can see their caregiver's hands as they use a machete to dig out a tuber, or bail water from a pond. They can see the faces and work of others, and initiate interactions with them too. While caretakers walk through the forest, infants can feel the pace at which BaYaka travel. They smell, see, and hear the forest. When caregivers pause to survey an almost-fruiting liana or an abandoned beehive, so does the infant. From the sling, BaYaka babies participate in the practice of walking in the forest long before they take their first steps.

BaYaka parents view motor development as an autonomous process (Neuwelt-Truntzer, 1981). However, they acknowledge that the playful activities of caregivers can help speed this process along. Infants are often held in a sitting position on a caregiver's lap. Caregivers offer varying degrees of support based on how well children can sit without help. While sitting, infants are almost always placed facing outwards, looking into the camp (Hewlett & Roulette, 2016). From this position, caregivers point "to other people and objects in and around the camp that children can learn from" (Hewlett & Roulette 2016, 10). Infants are also held upright on a caregiver's lap and bounced up and down to make them laugh. Such supported standing may help infants learn to bear weight on their legs and step voluntarily (Takada, 2020).

Once they can sit independently, infants around the world more freely explore objects with their hands (Karasik et al., 2015; Soska & Adolph, 2014). BaYaka infants may pick up and mouth sticks, wood shavings, or discarded palm nut husks. They may be handed knives or other adult tools to touch, hold, and explore (Boyette, 2024; Lew-Levy et al., 2019). The rhythmic percussive nature so typical of infant object exploration is ideally suited to helping them practice the hand-eye coordination, aim, and movement efficiency necessary for later tool use (Kahrs, Jung, & Lockman, 2012). To amuse and distract children, caregivers



**FIGURE 1** BaYaka caregivers support infant walking. (A) A caregiver helps an infant stand and walk towards another community member. (B) A caregiver holds an infant's hand as they walk across camp. (C) A caregivers places posts in the ground to scaffold cruising. Figures drawn by Quintin Caldwell from videos coded in Hewlett and Roulette (2016) with permission from Barry Hewlett.

will sometimes make small tools, such as from broken or discarded materials. For example, a father fashioned a miniature *djombi* hatchet for his 2-year-old daughter with the broken-off tip of a machete. During a foraging excursion, Hewlett (1991) also observed a mother making her child a small digging stick. With the infant sitting in her lap, she grasped her infant's hands around the object, guiding her through the act of digging. Such body manipulation is a common occurrence in camp, scaffolding children's participation into activities such as cooking, eating, and dancing (Hewlett & Roulette, 2016).

The transition from sitting to crawling is relatively seamless yet opens the door to the autonomous exploration characteristic of BaYaka childhood (see next section). Crawling from one caregiver to another, an infant may watch a children's soccer game here or the manufacturing of a basket there. They will stop to sit and explore refuse from crafts or cooking. Crawling infants will grab any tool left within their reach, such as a machete momentarily left on the ground while a mother washes her hands, or knife for cutting *koko* leaves left on a mat. Crawling infants' activities are carefully monitored by all camp members, yet they rarely interfere unless the infant finds herself in danger. Even then, caregivers merely adjust the infant's position or activity; a sharp knife may be replaced by a duller one, an infant may be turned away from a fire and towards another enticing activity (Lew-Levy et al., 2019).

Shortly after infants crawl, they start to cruise. The BaYaka built environment is ideal for cruising. *Mongulu* and *esembe* houses—which are respectively domed and pavilion shaped—offer regular posts and beams which infants can hold and navigate. Supported by a long horizontal bed frame, an infant can walk the length of a house. Caregivers will help infants stand up (Figure 1A) and hold their hand (Figure 1B) to help them traverse open areas. Sometimes, mothers will produce physical scaffolding to encourage infant walking and to distract the infant from more dangerous or disruptive activities. For example, a mother may place a series of posts in the ground at regular intervals (Figure 1C). These posts are intended to help the infant stand up, and act as vertical “monkey bars” along which infants can practice taking steps with less support as they leave one post while reaching for the next.

The onset of walking is usually associated with language development (Walle & Campos, 2014). Developmental psychologists suggest that this may be because “walking facilitates carrying, carrying promotes new types of social interactions, and these social interactions shape infants' language input” (Adolph & Hoch, 2019, 157). Such language input typically includes affirmations, descriptions, and especially, action directives by caregivers (Karasik et al., 2014). For BaYaka infants, action directives primarily take the form of assigned tasks. Walking infants are tasked with carrying objects such as plates, food, or knives, across the camp (Hewlett & Roulette, 2016). More skilled walkers may be assigned more complex tasks, such as fetching a liter of water from the watering hole at the edge of camp or bringing coals from one fire to another. These tasks help scaffold children's participation into the flow of daily cooperative activities by

bringing attention to community needs and providing opportunities for children to meet them (Boyette & Lew-Levy, 2021). When children refuse or ignore an assigned task, they are almost never reprimanded. Instead, caregivers may repeat their requests, assign different tasks, or simply move on. Caregivers understand that as children grow and develop *mayele* (intelligence), they will become motivated to participate in shared community labor without being asked (Boyette & Lew-Levy, 2021).

When toddlers misbehave, parents may use forest walking to help impart intelligence and stop disorder (*mobulu*). The first author once asked a mother why she had taken her toddler into the forest with her, instead of leaving her in camp to play with the other children. The mother explained that her daughter was walking *kirikiri* (all over the place) in the camp, making *mobulu*. She thus took her daughter into the forest to redirect her towards more harmonious behaviors. An elder further described to the second author the advice he gives his young children when walking in the forest:

When you walk in the forest, walk with intelligence. Don't go *kirikiri*. Don't walk *kirikiri*.  
Listen to the forest (*dikonda*—dry land forest).

In this section, we have argued that BaYaka caregivers engage in a variety of motion-full practices through which infants precociously develop motor skills related to sitting, walking, and manipulating objects. As infants gain mobility, they attend to their environment by exploring their surroundings and the activities of others. Assigned tasks further encourage children to attend to, and find their place in, community endeavors. When toddlers misbehave, BaYaka parents may redirect their behavior by taking them into the forest. By 2 years, BaYaka toddlers are increasingly enticed away from the care of adults and into that of the playgroup, where they continue to cultivate their motor skills and keen observation of their social and ecological surroundings through play.

## CHILDHOOD: NAVIGATING THE FOREST IN AND THROUGH PLAY

By early childhood, much of BaYaka children's day is spent in play (*massana*) (Boyette, 2016a; Lewis, 2002; Lew-Levy, Boyette, et al., 2020). In the playgroup, boys and girls explore the camp, village, and forest, older children care for younger ones, and food collected or prepared during play is carefully shared with all present. As a joyful communal activity, such play cultivates distinctly BaYaka cooperative foraging skills (Bombjaková, 2018, 280; Lewis, 2002, 125–28). In what follows, we describe two forms of play which we view as specifically contributing to children's growing ability to walk in the forest: exploratory and emulative play.

During exploratory play, children walk through the forest and observe their surroundings (Boyette, 2016a, 2016b). Importantly, children are not traveling from one location to another; rather, they aim to escape the heat of the camp or more often, the village by moving in and through the cool and shady forest. Children take the path(s) least traveled by exploring areas of the forest not usually accessible to adults. For example, in one typical bout of exploratory play, a 7-year-old boy suggested that the playgroup head into the forest. A few feet into a well-worn trail, the children ducked into a dense thicket. Older children cleared a child-sized path through the thicket while helping younger children over tree roots and under low-hanging branches (the first author and her research assistant crawled behind). Eventually, the children emerged into an open section of the forest. Finding *mondonge* (*Chrysophyllum* sp.) on a small hill, the children stopped to suck the sweet juices from the fruit, pointing out more *mondonge* to each other as they went. Having their fill, the children ducked back into the thicket, from time to time pointing out *mela* vines, ripe palm nuts, and animal tracks. At other times they stopped to rest, or to climb trees to collect *ediki* (monkey fruit) to share. Eventually, we bushed-wacked our way onto another forest trail, which led us back to camp.

In our recent study of BaYaka children's cooperative autonomy development, 67% of interviewed parents reported that adults should not interfere in children's independent activities because they view children



as agents in their own learning. Illustrative of the importance of exploratory play, one parent stated (Boyette & Lew-Levy 2021, 11; see also Neuwelt-Truntzer 1981):

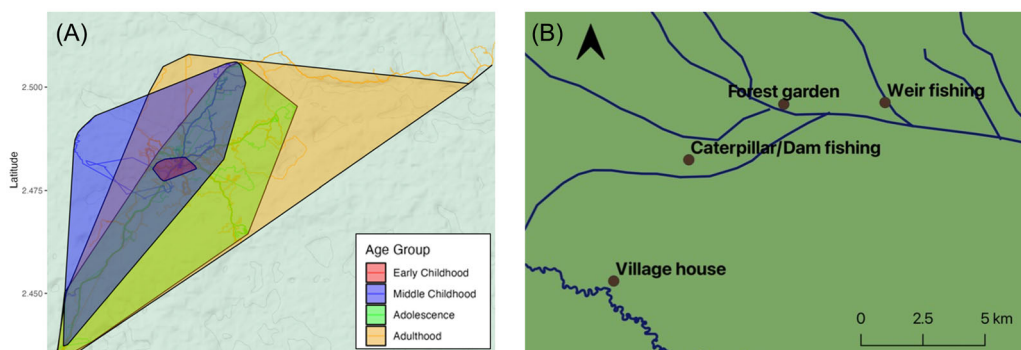
If the child plays or runs in the forest, he will learn on his own. It's not up to you to teach them.

This, despite caregivers acknowledging that they worry about the risks associated with doing so. Specifically, parents were concerned that children would encounter venomous snakes, gorillas, and thorny plants while exploring. It thus appears that caregivers view the learning opportunities offered by forest play as outweighing its potential costs.

As a group activity “characterized by positive affect and a focus on means over ends” (Boyette, 2016a, 766) the example above demonstrates several ways in which exploratory play may contribute to children's social, motor, and cognitive development. Exploratory play draws “from and builds on children's trust of each other and their knowledge of the forest ecology” (Boyette, 2016a, 766). Children help each other move through the forest, and point out edible or hazardous plants, animals, and their track and sign as they come across them. Salient plants and animals learned from peers during exploration may serve as prototypes from which children generalize folkbiological knowledge to other species and genera (Wyndham, 2002). Moving over and under obstacles and participating in varied play over rough forest terrain—as BaYaka children do while exploring—improves balance and coordination (Fjørtoft, 2004). During exploratory play, children may “tap into well-established and fine-tuned links between action and cognition that are primarily used for keeping track of the environment during movement” (Newcombe & Frick, 2010, 107). Exploring areas in between forest trails may contribute to children's spatial cognition, as has been demonstrated among Bolivian Tsimane (Davis & Cashdan, 2019).

Emulative play also enables children to practice the motor skills needed to walk in the forest. For example, a man once felled a large and tall tree containing honey on the edge of camp. While he did so, all camp members came to watch and collect honey. For days after, children grabbed any machete or *djombi* they could find laying around camp and, in the company of the first author, headed out into the forest to cut trees themselves. A group of boys particularly enjoyed this activity, and often went to the forest to cut down saplings. First, a suitable climbing vine needed to be found. Then, one boy would tie the vine around his waist. If he tied the knot incorrectly, another would redo it for him. With a machete in the crook of his neck or a *djombi* over his shoulder, the boy would lean back against the vine and shimmy up the tree. The others watched, providing advice: “don't move the vine as you climb,” “cut the vines [which are keeping the tree from falling]” Children also cautioned each other regarding how the tree would fall: “watch out for the kickback,” “if the tree starts to fall, we have to run,” “it's [the tree] going, don't be scared.” The child climbing the tree would sometimes ask questions of his friends: “how do I climb down?,” “which way will the tree fall?” The repetitive nature of these play activities may improve children's endurance, strength, energetic economy of movement, and fine motor skills (Cheraghi et al., 2021; Ford et al., 2009; Gümüşdağ, 2019). Through such cooperative play, children observe, work out how best to safely undertake a task, and refine their forest walking skills in the company of their peers. Because such emulative play accommodates the participation of children varying in age, it may also foster keen attention to the needs, abilities, and interests of others (Brownell et al., 2002).

To summarize, here we have argued that through exploratory and emulative play, children refine their walking skills alongside other motor skills (e.g., climbing, tool use) required to safely move through, and make a living in, the forest. Play further fosters attention to other children, and to their ecological surroundings. Specifically, by watching, instructing, and caring for each other during play, children develop a sense of trust, and sensitivity to the activities of others. By exploring the forest and encountering plants and animals in the playgroup, children also develop an understanding of edible and hazardous nonhuman kinds and their distribution in space. Such knowledge is put into practice as children become active foragers by middle childhood.



**FIGURE 2** (A) Tracks of daily forest travel by children and adults collected in a caterpillar camp over a 6-week period in 2018. Polygons contain all tracks for each age group, showing that travel ranges increase with age. Map by Sarah M. Pope-Caldwell. (B) One family's seasonal settlements. Redrawn by Haneul Jang from Boyette et al. (2022), CC BY 4.0.

## CHILDHOOD: WALKING AND WORKING TOGETHER

Experimental research suggests that children reach adult walking speeds by middle childhood (Mateos et al., 2021), even if their customary (or comfortable) walking pace tends to be slower (Frost et al., 2002). Reflecting their changing bodies, BaYaka children's travel ranges grow as they do. Figure 2A shows the travel of BaYaka children aged 3–18 living in a forest camp over a 6-week period. As can be seen, travel ranges increase substantially with age. Such daily travel brings children to resource patches such as hunting grounds, gardens, or fishing ponds. Seasonal travel further brings children through different areas of the forest, such as the caterpillar camp, *kombi* (weir fishing) camp, hunting camp, or honey camp. Figure 2B shows the seasonal settlements for a BaYaka family. To travel from the village to the *kombi* camp via the caterpillar camp and forest garden, the family travels some 15 km as the crow flies. By moving daily and seasonally through the forest, children “learn by doing” a variety of subsistence activities that contribute to self- and community-provisioning. In this section, we describe how the motor skills acquired by BaYaka children during play translate to their proficiency at procuring foods from the forest, and how parents help children further develop their forest walking through learning opportunities both inside and outside of camp.

BaYaka adults forage with children about a third of the time (Lew-Levy et al., 2019). Caregivers report that they leave children behind when children don't walk well enough to reach distant foraging patches, when there are risks along the trail, such as deep waters that must be waded through, and when children themselves are otherwise occupied with their own play or work (Lew-Levy et al., 2019). In these instances, children often opt to forage with their peers. Some fruit such as *mobe* (junglesop) are easily encountered on the ground along the forest trail. Collecting other fruit, such as *ediki* or *maondo*, is contingent upon having at least some peer group members who are proficient tree climbers (Kandza, 2020). One or more children will usually climb, dropping fruit which is collected by the children below. Children also participate in child-specific hunting matched to their smaller size, lower strength, and slower comfortable walking speeds; children manufacture slingshots and palm-frond spears to hunt songbirds and rats, respectively. Resources are evenly distributed among all present, and usually consumed on the spot. Collecting other resources such as fish, tubers, and honey, is often dependent upon children's ability to access and use relevant tools such as buckets, machetes, and *djombi* (Kandza, 2020). Younger children who lack the skillset to collect a resource may assist older children in other ways. While collecting honey, younger children may tend a fire and cut leaves, while older children use these to make smoky torches with which they climb up to the hive to placate the bees. As can be seen, the fine (e.g., tool making, tool use) and gross (e.g., walking, tree climbing) motor skills refined during play, and the cooperation fostered within the playgroup, ensures that all children can contribute to foraging in age- and ability-appropriate ways.

Walking in the forest is a recognized knowledge domain that caregivers feel parents should teach. For example, the second author asked 53 adults from Bagandou and surrounding forest camps to list important things to teach children. Twenty one percent of participants nominated “walking in the forest” and associated activities (forest wandering, forest roaming, looking/searching for food). Other important activities included a variety of subsistence tasks such as hunting, gardening, trapping, and honey collecting, household activities such as house building, cleaning, and washing dishes, norms of behavior such as sharing, being kind, and having respect, and school knowledge. While recalling how and from whom they learned to walk in the forest, some children and adults from the Motaba report learning on their own, but in most cases, they recall learning through observation of, and teaching from, parents. Below are some representative examples of their responses:

- My father called me to walk in the forest
- I went into the forest together with my mother
- I learned to walk in the forest on my own
- My father said: this is how you look for things
- I watched my mother and father walk in the forest
- I went with my mother to walk in the forest with my basket
- I walked in the forest with my mother to see what my mother did
- My father said: come, let's go walk in the forest so that you have forest knowledge

These responses demonstrate the ways in which learning to walk in the forest is primarily done in the company of others through multiple learning mechanisms. By being in close proximity to them, children attend to what caregivers do in the forest, reflecting local enhancement (Heyes, 1994). Children are also actively encouraged to pay attention to their surroundings and to the activities of others, reflecting teaching (Kline, 2015).

Narrative responses from the Motaba regarding how adults learned a variety of subsistence tasks demonstrate the importance of walking in the forest as a first step towards nearly all subsistence participation. For example, a man in his thirties explained how he learned to collect honey:

I *walked in the forest* with my father. When my father saw honey, he called me to get it. “Go see the honey”. When he saw the animal trail, he showed me the tracks and asked me “what is this animal?”

A 20-year-old man outlined how women learn to collect *ekule* tubers:

They *walk in the forest* with their mothers. She calls the child when she sees the *ekule* yam vine. “You follow below, I follow above”. When the child comes, the mother digs, and the child watches to learn.

A woman in her sixties described learning to collect *koko*:

[I learned] when *walking in the forest* with my mother. My mother showed me different kinds of *koko*.

As these reflections suggest, walking in the forest with parents provides children with new learning opportunities. They encounter new resources and further refine their knowledge of plant and animal species. Through demonstration and pedagogical questioning, parents enhance children's attention to stimuli they may have otherwise missed. Children are given the chance to try out new and risky activities under the watchful eye of a skilled adult. As children's explicit ecological knowledge related to edible and craft plants, honey types, and animals increases through forest walking, so does their implicit subsistence know-how (Lew-Levy et al., 2021).

Still, not all animals are easily encountered while walking in the forest. Some animals are rare. Animals that live in the canopy or below ground may not be easily seen. Other animals are purposefully kept at bay through singing and loud conversations because they are dangerous (Lewis, 2002, 110). In these circumstances, caregivers may foster the attentional stance necessary for learning about animals encountered while walking in the forest by literally bringing them home.

Hunters regularly return to camp with juvenile animals. These tend to be carnivores, such as long snouted (*nganda*) or marsh (*nkala*) mongooses, or different monkey species (*keema*). These animals are given to children as playthings. Several times, we have observed children encircle a juvenile animal, carefully observing it. They discuss the color of its coat, the shape of its nose, the length of its tail, or whether the animal is male or female. They also comment on its behavior, such as the way it moves, how it scratches behind its ear, or how it tries to hide. Children pass the animal around, at times treating it as a baby, at others as an object of rough play. Offering different foods, the children consider what it eats and what it ignores.

Hunters also sometimes return to camp with injured living monkeys or large birds. For example, a hunter once returned to camp with a large male monkey which had been shot. The hunter tied the injured monkey to a house pole and stepped back. Women and children came towards the monkey and formed a circle a safe distance from it. Together, the women and children discussed markings on the monkey's face, deciphering clues regarding its species. Hunters were conspicuously silent. Camp members imitated the monkey's facial expression, the noises it made, and talked about what it was doing. This observation and discussion period lasted about an hour. The women eventually filtered off to tend to the cooking, the children ran off to play sometime later. When everyone had lost interest, the hunter killed the animal, dried the meat, and brought it to the village to be sold to a farmer.

As these examples show, by bringing hard-to-encounter animals back to camp, hunters give children opportunities to develop intimate knowledge of animal species and their behaviors. Later, when they catch a glimpse of these animals in the flesh, or their track and sign, children may be better able to call upon the first-hand experiences gained in camp to interpret ecological encounters while walking in the forest.

In sum, we've argued throughout this section that children's growing ability to walk in the forest enables direct participation in subsistence activities. While in the peer group, children's foraging techniques reflect their strength, size, and walking speed. Attention to the needs of others further helps organize peer foraging such that all children can participate in meaningful ways regardless of their age or abilities. Parents view the practice of walking in the forest as important to convey to their children. By walking in the forest together, and by bringing the forest home, caregivers provide children with direct encounters with nonhuman kinds, through which children can further refine their ecological knowledge. In the next section, we describe how adolescents apply their forest walking skill to meeting their social needs.

## ADOLESCENCE: EXPLORING, LEARNING, LOVING

BaYaka adolescence is primarily characterized by freedom (Hewlett & Hewlett, 2012; Lewis, 2002). Adolescents can skillfully perform most foraging activities (Hewlett & Cavalli-Sforza, 1986; Lew-Levy et al., 2021). Still, adolescents continue to be provisioned and cared for by adults, and their own participation in subsistence and childcare is not obligatory (Hewlett & Hewlett, 2012). BaYaka adolescents use their free time to explore their surroundings with friends, learn new things, and check out members of the opposite gender (Hewlett & Hewlett, 2012). These activities facilitate the flow of information and people across the vast network of forest and village settlements connected by paths which link northern Congo, southern Central African Republic, and south-eastern Cameroon. In this section, we describe how adolescent forest walking helps maintain these networks.

At the onset of puberty, adolescents usually move into separate huts with others of their same gender. Adolescents not only live together, they also walk in the forest together. Adolescent girls will leave camp with their baskets and machetes, returning with pounds of tubers and other resources which are distributed to other camp members. Adolescent boys will collect honey and check traps, excitedly bringing what they

find back to camp. Alongside foraging, adolescents do a multitude of other activities while in the forest. Girls sometimes build a swing out of liana vines. They yodel, clap, and encourage each other to sing. Boys sometimes pause to smoke or swim. Both boys and girls will build fires and cook some of the food they've collected. While snacking, they gossip about marital quarrels seen in the village, and tease each other about love interests. Sometimes, groups of adolescent boys, girls, or both, will head out together on overnight trips further afield to hunt, fish, or collect caterpillars. These trips give adolescents opportunities to bond with each other, demonstrate their independence as foragers, and when in mixed-gendered groups, explore sexual relationships (Hewlett & Hewlett, 2012). Day-long and overnight foraging trips thus contribute to developing trustful, supportive, and caring relationships with peers. As one BaYaka adolescent explained to Hewlett (Bentz 2001, 28), "good friends walk together in the forest."

In adolescence, BaYaka seek to refine their subsistence knowledge and acquire a greater understanding of their spiritual worlds. Specifically, adolescent boys are taught "hunting rituals, medicine, and techniques, and adolescent girls acquire gender-specific social-sexual knowledge" (Hewlett & Hewlett, 2012, 93). For example, boys refine the hunting skills acquired in the peer group by seeking tutelage in big game hunting from older and more experienced hunters (Lew-levy et al., 2021, 2022; Hewlett & Hewlett, 2012). Adolescent boys often accompany their fathers, uncles, or grandfathers to the *ndjango*, during which men travel far into the forest to spear hunt over several days. Through direct teaching, adolescent boys acquire the knowledge and technical aspects of spear hunting. Through scaffolding, they are also given the opportunity to hunt animals themselves. One man recounted his first successful spear hunt as follows:

I became a bit older, the elderly parents had left me a spear, and when we would walk in the forest with them, they asked: "who will kill this animal?" I answered always: "me." After that, my dad told me: "go in front." We saw an animal. "Did you see it?" I answered "no." He said, "go in front, real close" and then I also saw it. I started to stalk, since it was still lying down. I pushed the spear into the animal and the animal started to run away. I called the others and they brought sticks and they hit it and we killed it.

Successful spear hunting not only brings meat back to others but, according to Kitanishi (1995, 92), it is also "the requirement to be regarded as 'an adult man.'"

BaYaka recognize adolescence as a time during which children are especially open to learning innovations (Hewlett, 2013). Such innovations include new songs and dances associated with forest spirits, basket weaving techniques, or new medicinal uses for plants (Hewlett, 2021). Adolescents make active choices regarding what innovations they want to learn, and from whom (Hewlett, 2013, 2021). They are willing to pay innovators to teach them new skills. Adolescents reflected to Hewlett (2013) that they sought to learn innovations to seem more attractive to potential spouses, and also to better support their future family. Because innovators are rare and their knowledge is sought after, BaYaka adolescents are willing to travel to distant camps some several days walk away to seek out the "best" teachers and learn innovations directly from them (Hewlett, 2013, 192). Adolescents' skill in walking in the forest, including their wayfinding and self-provisioning abilities, ensures that they can do so.

BaYaka adolescents also travel to other camps to visit with family, participate in dances, and to explore new areas of the forest for foraging or wage labor (Hewlett & Hewlett, 2012; Lewis, 2002; MacDonald & Hewlett, 1999). In the village where we work, BaYaka have long-standing kin relationships with a village some 50 km as the crow flies. Families regularly travel over 2 days to visit kin, attend funerals, and participate in commemoration ceremonies. Adolescents also travel over 60 km as the crow flies to a nearby logging town, where they seek out new experiences including wage labor, such as cutting *mongongo* for sale or clearing trails for logging prospectors (Bombjaková, 2018, 60). During such visits, BaYaka adolescents are exposed to market goods and DJ music. They interact with refugees from Rwanda, Chad, and the Democratic Republic of the Congo, as well as with Europeans and Chinese who work for the logging company. With earned wages, they may buy new forest spirits or raise enough money for bride wealth. Some BaYaka may even travel over 800 km during initiation ceremonies (Lewis, 2002, 73). Of course, such travels often lead to new romantic relationships (Bombjaková, 2018, 137). During a visit to the log-

ging town along the Motaba, one older adolescent returned after several months with a wife. Another adolescent boy travelled some 20 km as the crow flies to visit a large village. During his time there, he met a girl, and they began to date. Most travel to new places and forest areas takes place between 10 and 25 years of age (Hewlett et al., 1982). For boys, these exploration ranges are highly correlated with how far they travel to find a wife, with most boys marrying women from settlements some 50 km away (MacDonald & Hewlett, 1999). In our work along the Motaba, we learned that one adult lives over 80 km as the crow flies from their parent's natal village (Boyette et al., 2022).

In this section, we have argued that by walking in the forest with their peers, adolescents can assert their subsistence autonomy while developing long lasting friendships. Because they can walk in the forest, adolescent boys can accompany adults on big game hunting expeditions, thus acquiring more specialized knowledge, and demonstrating their maturity to the community. Adolescents seek out innovations and new experiences; they are willing to walk sometimes days through the forest to seek out teachers who can share innovations with them, and through visiting and exploring, adolescents encounter foreign people and novel things. Such travel helps BaYaka adolescents meet potential spouses, and the new knowledge and skills acquired during travel make them more attractive candidates for marriage. In sum, adolescent forest walking “is important for maintaining and establishing social-economic networks” (Hewlett & Hewlett, 2012, 88).

## WALKING AND RIPENING

Overall, our observations and conversations with interlocutors suggest that walking in the forest is socialized through motion-full caregiving in infancy, play and cooperative foraging in early and middle childhood, and exploration in adolescence. Two aspects of forest walking may specifically act to promote ripening: learning with and from others, and learning directly from the forest. As one elder succinctly explained:

The forest, it gives knowledge. My knowledge leaves me and I give it to my child. Look, [I say to my child] I walk like this. Look, I sit like this. Look, I talk to people like this.

First, as we've shown, walking in the forest is primarily done *together*, in the company of peers, parents, and other caregivers. Through play, encouragement, instruction, questioning, and observation, attention is drawn to subsistence activities, and ample opportunities for participation are provided. Children also learn to be sensitive to the needs of others, and to contribute to the community in their own way, based on their own abilities. Through these learning processes, BaYaka children ripen into young foragers who can provision themselves, their peer groups, and their families. BaYaka adolescents' ripening fuels the circulation of new knowledge throughout the Congo Basin. These findings closely reflect those of Bombjaková (2018, 86), who finds that the term accompanying (*tomba*) “is employed when the teacher accompanies [the] novice somewhere in order to share knowledge with him or her.”

Second, walking in the forest provides opportunities for direct bodily and cognitive engagement with children's ecological surroundings. Such first-hand learning is viewed by BaYaka as outweighing the costs associated with children encountering potential hazards. By exploring the forest with peers, walking with parents, or by traveling along forest trails to visit kin, BaYaka children encounter nonhuman kinds, and develop their conceptual understanding of the forest and the trails that connect places within it. The forest physically conditions BaYaka children's bodies, improving strength, coordination, and balance. Forest activities also provide an abundance of themes to emulate during pretense, thus stimulating children's imaginations. Walking in the cool, peaceful, and safe forest provides BaYaka children with an escape from perceived heat, noise, and danger of the village. And, when forest encounters with key animals are too dangerous or rare, BaYaka caregivers facilitate learning by bringing these animals home, thus honing children's observational opportunities. In sum, as among the Batek, our findings “highlight the importance of the forest, the place itself, as an enabling mechanism for the continuous production of knowledge” (Lye 2002, 10).

## IMPLICATIONS FOR MOTOR AND COGNITIVE DEVELOPMENT

A growing body of literature considers how ecologically- and historically-embedded walking practices shape embodied, affective, and sensorial knowing of self, others, and place (Bonilla, 2011; Geurts, 2002; Ingold & Vergunst, 2008; Vergunst, 2010). By considering the attentional stance that walking in the forest enables, our findings add to this work by shedding light on the links between motor and cognitive development. Previous research suggests that motor development can be conceived as *embodied*, *embedded*, *enabling*, and *enculturated* (Adolph & Hoch, 2019). Motor development is *embodied* in the sense that it is a flexible skill that emerges over months of practice through which children better manage their balance, coordination, muscles, and their own growing bodies (Adolph & Robinson, 2015). Motor development is *embedded* because landscapes (surface texture, elevation, slopes, structures) shape how children move (Adolph et al., 2012). Acquiring new motor skills *enables* developmental cascades. For example, sitting enables infants to grasp and explore objects more easily (Karasik et al., 2015; Soska & Adolph, 2014), and crawling enables infants to autonomously explore their surroundings, including people, objects, and places (Campos et al., 2000). Motor development is *enculturated* because it is shaped by social processes such as caregiver support (Duncan et al., 2018), historical processes such as trends in diapering (Cole et al., 2012), and cultural processes such as beliefs about motor development (Hewlett, 1996; Konner, 1976).

In terms of cognitive development, observational learning occurs in all cultural settings, but is maximized when children are *embedded* within meaningful community activities, and when children are considered *active learners* by their caregivers (Gaskins & Paradise, 2010). Observational learning is also maximized when socialization fosters *open attention*, defined as “attention that is both wide angled and abiding. In open attention, the scope of attention is distributed across a wide field [and] is sustainable over time” (Gaskins & Paradise, 2010, 99–100). By maintaining an open attentional stance, children are aware of their surroundings and can attend to multiple stimuli simultaneously (Gaskins & Paradise, 2010). For example, previous research suggests that open attention helps children learn from third-party activities (López et al., 2010; Silva et al., 2010). By attending to their environments, open attention has also been shown to help children track risks and resources in their environment, thus enabling sophisticated folkbiological reasoning (Atran et al., 2001; Gaskins & Paradise, 2010; Ross et al., 2003).

Our findings suggest that among BaYaka, children *embody* walking and other motor skills in their earliest years with the support of caregivers; more sophisticated movements are learned through play and participation in subsistence activities as they grow. BaYaka motor development is *embedded* within the constraints and opportunities for movement the forest offers. The reciprocal rhythms of gymnastic play with caregivers, exploratory and emulative play with peers, subsistence work with parents, and forest travel to distant settlements, also *embeds* children within networks of relationships characterized by a sense of mutual responsibility (Takada, 2020, 116). BaYaka notions of child development as analogous to the ripening of wild plants further situates children as *active learners* whose growth can be enhanced by creating favorable conditions. Every motor skill acquired or refined *enables* autonomous exploration of, and an *open attention* to, the activities of others, to the nonhuman kinds they encounter, and to new people, things, and experiences. In these and many other ways, BaYaka motor development and the open attentional stance it engenders is not only *enculturated*, but also *transformative* at multiple scales (see also Lye, 2002). Walking helps individuals develop intimate and affective relationships with the forest. Walking in the forest also fuels the circulation of novel technologies, forest spirits, and marriages throughout the region.

## FUTURE DIRECTIONS

We've focused on a single aspect of BaYaka livelihoods: the forest. However, BaYaka worlds also encompass the multi-ethnic villages in which they live for part of the year. As noted, BaYaka village walking involves different bodily practices: BaYaka appear shy, keep their eyes low, and espouse humbled postures. According to Lewis (2008a, 15), BaYaka use these techniques to play up the “expectations and conceits”

of farmers to get what they want from intercultural encounters. Such theatre involves keen attention to, and mimicry of, village customs and language (Lewis, 2008a). Because our observations were primarily conducted in forest camps, we lack the ethnographic material to provide rich descriptions of how BaYaka children learn to walk in the village. We hope to pursue this topic in future work.

BaYaka children's worlds also increasingly encompass formal schooling. As mentioned, BaYaka children's school attendance in the villages where we worked was sporadic. Yet, schooling is increasingly promoted by government and development agencies as a route towards socioeconomic empowerment for Indigenous peoples (Hays et al., 2019; Hewlett, 2000; Ninkova et al., 2024). BaYaka parents also tell us it is something they desire for their children, but that they sympathize when their children refuse to go because of the discrimination they face. Some attention has been paid to the challenges that schooling poses to children's learning of forest-oriented cultural and subsistence practices in the Congo Basin (Bombjaková et al., 2023; Dounias, 2017; Kamei, 2001). However, the affective, bodily, and sensorial dimensions of classroom learning have been less often explored. In her work with Peruvian Matses, Morelli (2012) notes that while school is taught by Matses teachers in the Matses language, children's movements are nonetheless constrained by the classroom environment. Specifically, "small desks and chairs require a certain way of positioning the body [...] and encourage stillness, while pushing the children to face, hence pay attention to, the teacher." In schools aimed at educating BaYaka children, our impression is that similar dynamics are at play (Bombjaková et al., 2023). Interestingly, two BaYaka pupils walked days and miles through the forest to return home because they did not receive enough food at their boarding school (Bombjaková et al., 2023, 8). This suggests that BaYaka children may use forest walking as a means of resistance to maltreatment at school. How BaYaka children learn to embody school-based practices, and how they navigate or resist transitioning between forest, village, and school motor and cognitive orientations is another important avenue for future research.

## CONCLUSION

In this paper, we examined how BaYaka children learn to walk in the forest. Drawing from our extended fieldwork in the Republic of the Congo and the Central African Republic, we found that forest walking is socialized through motion-full caregiving in infancy, play and cooperative foraging in early and middle childhood, and exploration in adolescence. Further, we argued that walking helps children learn with and from others, and learn directly from the forest, thus contributing to their ripening. Overall, our findings show that walking alongside other facets of motor development enables BaYaka children to develop an open attentional stance, emphasizing the embodied, collaborative, and situated practices and contexts which shape cognition.

## ACKNOWLEDGMENTS

Thanks to the BaYaka families who shared their lives, time, and words with us. From Congo, we would like to thank Prof. Clobite Bouka-Biona from IRSEN, who facilitated the acquisition of research permits and infrastructure, Dzabatou Moise, who served as a community liaison, and our field assistants, Mékouno Paul, Koutain Mindoula, Dzabatou Ardain, and Kiabiya Ntamboudila Francy. From Central African Republic, we thank Boyette's field assistants Mboulou Aubin and Mboula Edward for their hard work, including much walking in the forest. We would also like to thank Quintin Caldwell for illustrations, Sarah M. Pope-Caldwell and Haneul Jang for sharing maps with us, Robert E. Moïse for sharing papers with us, and Bonnie L. Hewlett, Barry S. Hewlett, and Alice Vittoria for helpful discussion and comments during the preparation of the manuscript.

## ORCID

Sheina Lew-Levy  <https://orcid.org/0000-0002-1250-6418>

Adam H. Boyette  <https://orcid.org/0000-0003-0306-6841>



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**How to cite this article:** Lew-Levy, Sheina, and Adam H. Boyette. 2024. “Learning to walk in the forest.” *Ethos* 52: 401–20. <https://doi.org/10.1111/etho.12441>