Gender Segregation in Early-Childhood Social Play among the Bofi Foragers and Bofi Farmers in Central Africa

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Gender segregation in early-childhood social play is a pervasive pattern in North America, and child-development scholars have suggested it is a human universal. But very few researchers have looked at gender segregation in small-scale societies, particularly those of hunter-gatherers, whom the authors here call foragers. The authors present their observations of fifty-six, one- to four-year-old children living in two small-scale cultures—Bofi farmers and Bofi foragers—in Central Africa. They examined gender and age variation in the social play of these two groups and found that three- to four-year-olds became more segregated by gender than one- to two-year-olds and that boys in particular showed a tendency to play with other boys. The authors also found that cultural differences became more manifest as gender segregation grew more prominent among the children of Bofi farmers than Bofi foragers. **Key words:** Central Africa, early childhood, gender, gender segregation, sex segregation, social play

In early childhood, children tend to play with others of their gender, strikingly so. In classrooms, boys commonly congregate in particular areas (i.e., the block area), and girls prefer to play together in distinct activity centers (i.e., dramatic play) (Martin 1998; La Freniere, Strayer, and Gauthier 1984; Pellegrini and Perlmuter 1989). Many studies in North America illustrate that, after infancy, children show preferences toward same-gender social and play partners (Fabes 1994; Fabes, Martin, and Hanish 2003; Hoffman and Powlishta 2001; La Freniere, Strayer, and Gautheir 1984; Maccoby and Jacklin 1987; Martin and Fabes 2001; Pellegrini 2004; Serbin et al. 1994). Such studies indicate that by three years of age, children generally play with children of the same gender, a phenomenon often described as the emergence of gender or sex segregation. In studies of nonhuman animals, researchers refer to gender or sex segregation as *social seg-*

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regation (e.g., Conradt 1998), which seems fitting because as children congregate with play partners of the same gender and, consequently, form same-gender play groups, the social experiences of girls and boys grow increasingly distinct. In this study, we will call the phenomenon *gender segregation*, and we more often use the term *gender* than the term *sex*, to emphasize its biocultural nature.

Few researchers have conducted studies of gender segregation in small-scale societies, and these few show the same pattern of gender segregation emerging in early childhood and becoming most prominent by adolescence (Whiting and Edwards 1988; Munroe and Romney 2006). Maccoby (1998) and Maccoby and Jacklin (1974) proposed that gender segregation occurs universally, explaining it as a product of early socialization through play that leads to a gender-segregated social landscape. Maccoby (1998) also posits that gender segregation seems driven by the preferences of children rather than adults and that it more often appears in settings where children are free to make their own choices about who they play with (e.g., free-play times, school playgrounds). According to Pellegrini (2009), gender segregation and the formation of same-gender relationships in childhood affect social status and the ability to compete for mates in adulthood. He describes how, in gender-segregated play, boys and girls learn and practice the accepted social roles of men and women in their societies. Thus, from an evolutionary perspective, he considers the emergence of gender segregation a human universal representing an adapted propensity that leads males and females to form relationships with members of their own gender.

The gender-segregation studies in small-scale societies that support these universal hypotheses have been of small-scale horticultural and pastoral populations with distinct gender hierarchies (e.g., Whiting and Edwards 1988; Munroe and Romney 2006). We know little about the emergence of gender segregation in relatively egalitarian societies, such as Central African hunter-gatherers (we call them here, *foragers*). By examining two different small-scale societies, one with a distinct gender hierarchy and one with relatively egalitarian views about gender, we have an opportunity to look at the possible impact of culture on the emergence of gender segregation in early-childhood play. And this is what we propose to do—complement existing literature by both examining gender segregation in social play and the role of culture, gender, and age in the emergence of gender segregation among the people of two small-scale societies in Central Africa. The people of these two groups live in the same physical ecology, speak the same language, but differ in terms of culture and subsistence strategies.

Biological and Cultural Perspectives of Gender Segregation

Pellegrini (2004, 2009) has described gender segregation from an evolutionary perspective, explaining that gender-segregated groups provide an important socialization context that promotes reproductive fitness. Essentially, for him, girls and boys learn and practice the important skills of their own gender—including how to compete—in same-gender play groups. From this perspective, gender segregation in play serves an important adaptive function by helping kids learn to promote their social status and compete for mates later in life. He argues that the proximal causes of gender segregation are the gender differences in physical activity levels. Children are more likely to play with others like themselves in interests and physical activity levels, and this typically happens to be play partners of the same gender.

Maccoby (1998) and Maccoby and Jacklin (1974) see gender segregation as universal among humans, the product of early gendered socialization patterns that give boys and girls different specific messages about how to behave in accordance with socially acceptable gender roles. This early gendered socialization creates same-gender compatibilities in play styles, and these, in turn, promote same-gender play partners. Maccoby further notes that children themselves drive gender segregation, the patterns of which are most evident when adults do not supervise the choices and children interact in relatively unstructured settings, as they do, for example, in free play.

These two ways of looking at the issue—from the perspectives of the evolution and of socialization—are compatible because they both treat gender segregation in early childhood as a human universal. Furthermore, evolutionary scholars recognize that biological and cultural factors are intertwined in both mutually supportive and contradictory ways (e.g., Blurton Jones 1990; Hewlett and Lamb 2002; LeVine 1988). For example, LeVine (1988) has described how cultural and adaptive-evolutionary contexts of child care may conflict, as cultural goals to provide children with certain competencies may be trumped by the survival-related needs of children living in high-risk environments. On the other hand, adaptive propensities are presumably expressed in culturally relevant ways.

Both perspectives inform the current study in which we sought to further examine the extent to which gender segregation is universal in early childhood and to consider how culture might influence gender segregation. To this end, we examined the behaviors of children aged one to four years in two small, but

distinct communities: the Bofi foragers and the Bofi farmers in Central Africa. In each community, we focused on these children and their social play with other children of the same and different gender, their age and gender, and the beliefs and practices related to gender roles and child care in each community.

Gender and Social Learning

Culture has many meanings, but in this article we consider culture socially transmitted and learned knowledge or behaviors shared to some extent by a social group. One definition of culture describes how people ". . . develop as participants in their communities. Their development can be understood only in the light of the cultural practices and circumstances of their communities—which also change." (Rogoff 2003, 3). Some call this dynamic and participatory process *socialization* or *social learning*. We prefer the term social learning because it foregrounds the learner and his or her participation in the process. Social learning teaches individuals to perform the roles considered appropriate for each gender (Renzetti and Curran 1999). These gender roles are sets of expectations that govern which behaviors are appropriate and which inappropriate for those of a particular sex (Cahill and Adams 1997).

Every culture teaches significant gender concepts and behaviors at an early age. Research shows that children learn the concept of gender and the characteristics that define masculinity and femininity well before age three, after which these concepts are progressively reinforced (Munroe and Munroe 1997; Williams and Best 1990). Furthermore, children's stereotypes of men (e.g., as aggressive) and women (e.g., as nurturing) tend to reflect those of the adults in their cultures (Williams and Best 1990). The social learning of gender appears to be universal, but we have not paid much attention to the interplay in different cultures between social context and the understanding of gender development during the early-childhood period. Most of the research, for example, covers only North American children. Because culture frames the social definition of gender, it is important that we compare the interplay between social context and gender learning across different cultures. Play provides us a good opportunity for such comparisons because, as past research demonstrates, gendered behavior in early childhood often occurs during less structured times (Maccoby 1998).

Early Childhood Play and Gender Segregation

For several decades, research in the field of child development has shown that after infancy children begin to show preference for same-gender peers and that

this preference is pervasive by the end of preschool; this observation results predominantly from studies in North America and Europe. Jacklin and Maccoby's (1978) laboratory playroom study of ninety thirty-three-month-old children in the San Francisco Bay area found that, regardless of the composition of play groups, children tended to play more with same-gender peers than with different-gender peers. In most American preschools, girls tend to assume cooperative and domestic roles, and boys take on more competitive and aggressive behavior (Pellegrini 2003; Pellegrini and Smith 1998). Thus, it appears that, early on, boys and girls diverge in their play, meaning that boys become more physically active than girls. Fagot (1985) found that at around the age of two, when children start to understand their gender, they consider members of their own gender as the "in-group" and members of the opposite gender as the "out-group."

In the United States, the study of gender segregation during the early-childhood period has primarily occurred in formal, group-care settings (Bohn-Gettler et al. 2010; Fabes, Martin, and Hanish 2003; Hoffman and Powlishta 2001; Moller and Serbin 1996; Pellegrini et al. 2007; Powlishta, Serbin, and Moller 1993). Such formal settings as preschools, child-care programs, and laboratory schools offer unique opportunities to examine children's playmate preferences (Martin et al. 1999) and actual play patterns (Pellegrini et al. 2007). These settings reflect, too, the influence of the adults who administer them and their involvement has an impact on the children's experiences. For example, preschool classrooms typically consist of large groups of same-age peers (e.g., eighteen four-year-olds); mixed-age classrooms are less common (Katz, Evangelou, and Hartman 1990), and even these typically include only three- and four-year-olds. Adults often gender balance preschool classrooms in an effort to promote gender equity (Moller et al. 2008). Thus, preschool classrooms will have more same-age, same-gender peers than more informal contexts, such as families, places of worship, and other community settings. Finally, most preschool communities consist of one classroom containing several learning areas, this area for blocks, say, and this one for dramatic play, and so on. Such classrooms constrain children's freedom of movement and limits the types of materials they can use, the activities they can engage in, and number of peers they can play with. Very little research considers preschool-aged children's gender segregation in informal contexts.

Gray and Feldman (1997) conducted one of the few studies of gender and age mixing and segregation in an unstructured setting—in this case, a democratic school without grades. They observed a wide age range of students, from four to eighteen years of age and examined their play and conversation partners.

Gray and Feldman found that students segregated themselves by gender more often in play than in conversations and that the gender mixing related to age mixing. This intriguing finding highlights the need for further study of gender segregation in more informal contexts, and, in particular, outside traditional classrooms in North America.

Cross-Cultural Studies of Gender Segregation in Play

Even though most studies have been limited to North America and early-education settings, a few have involved cross-cultural studies of gender segregation. Whiting and Edwards (1988) observed children between the ages of three and ten in communities in Kenya, Mexico, Philippines, Japan, India, and the United States. In each community, distinct gender segregation occurred among children between the ages of six and ten. During this age range, although both boys and girls segregated into same-gender peer groups, boys tended to show a more distinct same-gender preference that even included—starting at age six—reduced contact and interaction with their mothers and other adult females. Furthermore, Whiting and Edwards examined play groups in their studies and found that, in all communities, the children tended to keep close to those of their own gender.

Munroe and Romney (2006) studied gender segregation among the three- to nine-year-old children of Logoli farmers and herders ("agro-pastoralists") in Western Kenya, Newar farmers in Nepal, Garifuna town-dwelling farmers in Southern Belize, and Somoan farmers. The authors found clear gender segregation among children, but the tendency appeared stronger among older children (those seven to nine years) and especially among older boys. Thus, they saw some evidence that gender segregation differed depending on the gender involved. Harkness and Super (1985) observed 152 children between eighteen months and nine years of age among the Kipsigi farmer and cattle herders in Western Kenya and found that, in play groups, these children tended to separate by gender beginning at age six. However, the Kipsigi children did not otherwise show clear gender preferences toward same-gender social partners regardless of age. Harkness and Super concluded that gender segregation occurs relatively late in Western Kenya compared to the United States—a finding that contradicts many who claim gender segregation emerges in early childhood.

The cross-cultural literature on gender segregation in play mostly examines rural and town-dwelling farmers and agro-pastoralists. All of these communities tend to have fairly distinct sexual divisions of labor and age- and gender-differ-

entiated social hierarchies. To date, no one has studied gender segregation among relatively egalitarian hunter-gatherers, such as Central African net-hunting communities that have distinctly low levels of social-status differentiation and exhibit high levels of husband-wife cooperation in subsistence and child care (Hewlett 1991; Fouts 2008). To understand the extent to which a culture (and its related mode of production) may play a role in gender segregation in early-childhood play, we should compare relatively egalitarian foragers to some other local group rather than to people in distant cultures that may vary in many ways—being part of an industrialized economy, say, or speaking different languages. Thus, the Bofi foragers and Bofi farmers are well suited for comparing gender segregation because both represent small-scale cultures, live side-by-side in the same natural ecology, and speak the same language; but the two cultures are quite distinct in cultural beliefs and practices.

Measuring Gender Segregation in Social Play

Although the term gender segregation does not in and of itself imply active social engagement and play, most studies of gender segregation have identified the composition of play groups (e.g., same gender or mixed gender; mostly same gender, mostly mixed) and looked at preference toward same-gender social and play partners (Pellegrini 2009). However, these studies may overlook more subtle tendencies among children to simply spend time near children of the same gender, tendencies that may be more relevant to younger children (e.g., toddlers) who often engage in parallel play rather than sustained dyadic social play or play in larger groups. Thus, studying social play may be more appropriate for examining gender segregation of three-year-olds than younger children. Serbin and her colleagues (1994) studied gender segregation in toddler play groups that included interactive play, parallel play, and watching others play. They found no clear tendency toward gender aggregation and segregation in toddler play groups, but when toddlers did engage in same-gender play groups, they were more socially interactive. In mixed-play groups, toddlers engaged in more parallel play and in watching others play. Thus, it seems that same-gender play groups encourage social interaction even before children begin to exhibit same-gender preferences.

In summary, most research in gender-segregation studies examine North American children in child-care and preschool settings. Only a few systematic studies of gender segregation involve non-Western, small-scale societies. Although gender socialization is clearly linked to culture, the role of culture in

the emergence of gender segregation during play in relatively egalitarian communities has not been addressed.

We examined the emergence of gender segregation in early childhood among the Bofi foragers and Bofi farmers, considering children's social play with other children of both those from one to two years of age and those three to four. We sought to find the answers to these questions: To what extent does social play exemplify gender segregation among Bofi farmer and Bofi forager young children? At what age is gender segregation in social play apparent among the Bofi farmer and Bofi forager young children? Is gender segregation in social play more pronounced in young girls or boys among the Bofi farmers and Bofi foragers? How is gender segregation in social play among young children different in the Bofi farmer and Bofi forager communities? In short, we examined whether children's age, gender, or cultural community predicted gender segregation in social play.

Methods

Our study developed from a larger study of early-childhood development and care among the Bofi foragers and Bofi farmers in Central Africa, so the data we collected was not designed specifically to address gender segregation in social play and proximity. We collected several types of data relevant to understanding gender segregation. These included quantitative behavioral observations of the children; qualitative, semistructured and structured interviews with parents on a variety of child-development and care topics; a demographic survey of each community; and ethnographic participant observation in each community. Hillary N. Fouts collected most of these data in 1998, 1999, 2001, and 2006. Because the data were not collected to address gender segregation, we do not have interviews designed specifically to examine the cultural models of gender-related activities. Gender themes, however, became apparent in our ethnographic observations and informal interviews, and we have included descriptions of relevant qualitative data in a section of this article describing the ethnographic data of the two cultures.

Child Participants

The study involved thirty-five Bofi forager and twenty-one Bofi farmer children between the ages of eighteen months and five years. We approximated the ages

and ranked the children from oldest to youngest based on information from parents and relatives, season of birth, and our examination of dentition. The average age of Bofi farmer focal children was 34.6 months; the Bofi forager focal children averaged 38.8 months. Approximately half of the children we studied were girls (52 percent for Bofi farmer children and 51 percent for Bofi forager children). All children lived in camps (for the foragers) or village neighborhoods (for the farmers) with five or more other families. These settings provided many potential social and play partners to the children we studied.

Procedures

Using ethnographic field methods, we observed the communities and especially families with infants and young children as we participated in their lives. We frequently accompanied families during daily subsistence activities and followed them to family and community social and spiritual gatherings (related to births, deaths, community singing and dancing, healing practices, and similar activities). In addition to such participant observation, we also conducted structured and semistructured interviews with adults related to group demographic patterns (e.g., fertility, mortality, marriage), parenting practices, child development, nonparental care-giving patterns, weaning, fertility choices, birth practices, and breast-feeding initiation.

We observed quantitatively the behavior of fifty-six children (thirty-five Bofi forager and twenty-one Bofi farmer children). This entailed observing one child at a time and recording his or her behavior on-the-mark at thirty-second intervals onto a checklist of child and care-giver behaviors. Each child was observed for a total of twelve hours spread evenly over three days so that we could observe each child for three, four-hour sessions (six to ten in the morning, ten to two in the middle of the day, and two to six in the afternoon). We broke each four-hour session into four, forty-five-minute observations followed by a fifteen-minute break to keep the observers from fatigue. Including the thirty-second time samplings and the fifteen-minute breaks, we recorded 1,080 observations (hereafter called "observational points") for each child. We observed two children for only seven and a half hours (900 observation points) and six hours (720 observation points) because of scheduling conflicts and health problems.

Coding

To formulate our codes, we adapted the observational checklist developed by Belsky, Gilstrap, and Rovine (1984). Other studies have used similar adaptations

to observe infants in many different cultures, including Central Africa, Central America, Germany, Canada, and the United States (Fouts and Lamb 2009; Fracasso et al. 1997; Hewlett et al. 2000; Hewlett 1998; Leyendecker, Lamb, and Schölmerich 1997; Leyendecker et al. 1997; Roopnarine et al. 2005).

We used two behavioral codes in the analyses. In both, "I" indicated an infant or toddler we observed; "J" indicated a child aged one to fifteen years of age who was not a focus in this study. Because of the small size of the Bofi populations and because extended families lived in close proximity to each other in both groups, these latter children were usually relatives of the children we studied.

I-Play-J same gender. We used this code when one of the children we studied engaged in social play with a child of the same gender. Social play included activity that involved interaction with another person such as, for example, exploring and using objects together, playing games, role playing imagined scenarios, wrestling, and tickling. Social play did not include simply playing near another child who was also playing.

I-Play-J different gender. This code defined the play of one of the children we studied who engaged in social play with a child of a different gender. Social play included activity that involved interaction with another person such as, for example, exploring and using objects together, playing games, role playing imagined scenarios, wrestling, and tickling. Social play did not include simply playing near another child who was also playing.

Due to the age diversity and fluidity of the social landscape (people were always coming and going) in which we observed these children, we could not determine the different ages of those children who played or socialized with the children we studied. Thus, we considered play interactions with all juveniles, regardless of age. Even though we do not know the age variation in these play partners and how the variation might relate to patterns of gender segregation, we estimated that children in both cultural groups tended to play with children of a similar age (that is, within three to four years of their age). For example, we rarely saw adolescents play with toddlers or three- to four-year-olds because adolescents usually either worked in the fields or forest or engaged socially with each other. Among the Bofi farmers, children between the ages of five and eight typically served as care givers for toddlers (mostly two- and three-year-olds) when adult care givers were away, for example, farming. However, these young

care givers often played and engaged socially with the other children around them (including the toddlers) and typically acted as care providers only when toddlers were hurt, sad, or hungry. Bofi farmer child care givers were often girls, but both girl and boy social partners were similarly available (i.e., nearby) to the children we studied.

Hillary Fouts, trained at the National Institute for Child Health and Human Development in the observational techniques used in this study, collected most of the data. She mastered a 90 percent reliability criterion in the technique. In addition, a second observer, a research assistant, was trained to a 90 percent agreement on each code and conducted observations of thirteen subjects. We reassessed interobserver reliability in the field by having both observers view five four-hour sessions, totaling eighteen hundred observation points. The pair achieved a 93.54 percent agreement for the social-play code developed for field observation, and the Cohen's kappa was .84.

Analysis

At first, we also looked at nonplay factors including the children's proximity to others and nonplay social interactions. Play, however, proved by far the most frequent social interaction with other children, and proximity to others revealed no systematic patterns of gender segregation. So we omitted proximity and other social interactions from the final analysis and concentrated on play.

We found clear differences in overall levels of play according to cultural group and children's age. Farmer children engaged in more social play with other children than did forager children (7.3 percent of the day and 3.27 percent of observations, respectively) and three- to four-year-olds engaged in more social play with other children than did one- to two-year-olds (5.26 percent of the day and 4.09 percent of observations, respectively). These findings support a previous study of the Bofi foragers and Bofi farmers (Fouts and Lamb 2009), showing that Bofi forager children at this age interacted with other children less than did Bofi farmer children. The differences may result from child-care arrangements. Their parents usually still cared for forager children at this age, whereas older children frequently cared for farmer children who were away from their parents during the day. Thus, to control for these differences, we calculated the rates of social play among same-gender and different-gender children relative to the overall social play of those children we observed.

We used multivariate analyses of variance (MANOVA) to determine whether gender segregation was apparent in social play with other children

and whether play patterns differed as a function of the culture, age, and gender of those children we studied. We entered the cultural group (Bofi forager or Bofi farmer), age category (one to two years of age or three to four years of age), and gender as the independent variables and *I-Play-J same gender* and *I-Play-J different gender* as the repeated dependent variables. Following multivariate analyses, we used paired t-tests to compare rates of playing with same-gender versus different-gender children within each cultural group, age group, and gender. Cohen's *f* was used to identify effect sizes. Cohen (1988) has categorized small effect sizes as ranging from .10 to .24, medium from .25 to .39, and large as .40 or greater.

Ethnographic Background

The ethnographic data we present here reflect Fouts's extensive fieldwork with the Bofi foragers and Bofi farmers, including demographic surveys of the communities, qualitative interviews, and observations of families. The Bofi foragers and Bofi farmers constitute two distinct ethnic groups that reside near each other in the South-Western region of the Central African Republic on the outskirts of the Congo Basin rainforest. The Bofi foragers and Bofi farmers speak the same Oubanguian language—Bofi. Local people call the Bofi foragers "pygmies," though the foragers refer to themselves as simply "Bofi." The Bofi farmers also call themselves "Bofi," but they refer to the foragers by several derogatory terms for pygmies. The Bofi foragers and Bofi farmers live side-by-side in sympatric communities, interacting each day socially, spiritually, and economically. The Bofi farmer–Bofi forager sympatric relationship resembles that of other farmer and forager groups in the Congo Basin rainforest, like the Efe foragers and Lese farmers (Bailey and DeVore 1989) and the Aka foragers and Ngandu farmers (Hewlett 1991).

The Bofi foragers and Bofi farmers we studied live near two small villages of three to five hundred individuals located close to logging roads. For approximately nine months of the year, the Bofi foragers live in camps very close to the Bofi farmer villages (about one hundred meters to one kilometer from the villages). For about three months of the year, they live in camps in the forest typically within ten kilometers of the villages. Even when the Bofi foragers go into the forest camps, they see the Bofi farmers daily when farmers visit the camps to exchange cultivated products such as manioc and corn whiskey for forest

products such as meat, caterpillars, honey, and koko (a green leafy vegetable). Thus, the Bofi foragers and Bofi farmers are quite aware of each other's gender roles, beliefs, and child-care practices.

Bofi Foragers

Seminomadic, the Bofi foragers subsist by net hunting and by gathering. Like other Central Africa net hunters (such as the Aka [Hewlett 1991]), Bofi forager men, women, and children participate cooperatively in the hunts, which typically involve seven to fifteen families, each with a net. Mothers and fathers carry their infants and toddlers during net hunts and foraging forays but most three- to seven-year-old children remain in camp during the day. Once children are big enough to keep up with adults, they often choose to join their family in hunting and gathering forays. On most days, several adults stay with those children who remain in camp. Thus, in both forest and camp, children are around adults and children of various ages and genders. During the day, the camps typically contain children of mixed age and mixed gender, while some adults remain nearby. Adults serve as the main care givers for the children through early childhood. Bofi forager parents often said they would not feel comfortable leaving their three- or four-year-olds attended by children or adolescents in place of an adult.

Considerably egalitarian, the Bofi foragers do not typically base status or power on age or gender. They respect personal autonomy and value sharing, and they engage daily in cooperative behavior within and between households. The Bofi foragers rarely punish or boss their children. They give children of every age free choice to participate in subsistence activities and allow them to play with any materials or tools. So, for example, infants and toddlers use large knifes and machetes, and infants crawl freely around camp and near open campfires. Furthermore, adults rarely intervene in child conflicts, which they allow the children to work out on their own. Even though the foragers share extensively, they do not force sharing on their children. The main cultural tool they use to maintain their relatively egalitarian sharing is rough joking. Someone who does not share appropriately or who takes credit for a kill in a hunt will become the butt of their jokes or be made fun of in community-wide stories. But foragers also practice demand sharing. They expect individuals to share any item that someone demands—or, for that matter, even subtly requests. They support such sharing, too, by rough joking and storytelling. Although we have not systematically studied social learning about gender in this community, we think it is likely that children learn about gender through observing other children and adults,

through hearing stories, and through direct interaction with adults and children. We have never observed adults directly instructing children with respect to appropriate gender roles.

The Bofi foragers are loosely patrilineal and patrilocal (i.e., they live with the husband's kin group). But residence patterns are quite fluid and change depending on stages of marriage and individual circumstances. Bofi forager newlyweds typically live matrilocally (i.e., with the wife's kin group) for the first two to seven years of marriage while the husbands are performing bride service to their in-laws. Bride service involves strenuous and sometimes dangerous tasks for one's in-laws, like obtaining honey. Bofi forager couples acknowledge no predetermined end to bride service, and many of the men grouse that bride service never really ends. Once a couple moves to live with the husband's kin group, however, they generally consider the bride service has ceased, though many couples may move back and forth between kin groups for various reasons—if, for example, a wife misses her family, often following a marital conflict. Thus, the fluidity in residential patterns apparently relates to the gender egalitarian values among foragers, in which women and men both wield considerable power in family decisions. (For a more extensive descriptions of the Bofi foragers see Fouts 2008; Fouts, Hewlett, and Lamb 2005.)

Bofi Farmers

The Bofi farmers subsist on slash-and-burn horticulture. And even though the men hunt with shotguns and snares, they obtain most of their forest products through trade with the foragers. The farmers practice a distinct sexual division of labor. Women are responsible for the majority of the farming (clearing, planting, harvesting), child care, cooking, and production and sale of corn whiskey. Men engage in intervillage trade, trafficking in such cash products as palm wine, tobacco, clothes, knives, and meat. They also politic within the village, hunt, and participate in burning and clearing the fields. Thus, men and women spend most of their days apart—the men in the village, the women in the fields. Most mothers carry their infants to the fields. Then, around eighteen months to two years of age, toddlers begin to remain in the village during the day with sibling care givers, typically an older sister between the ages of five and eight. Consequently, during the day, young children from about eighteen-months- to four-years-old generally spend their days near other children of various ages and genders but not near their parents. And during the day, multiage groups of children typically roam the village.

The Bofi farmers value communalism, placing the needs and desires of the group above those of its individual members. For example, when couples seek divorces, they sometimes face substantial pressure from their clan against separating. Nonetheless, despite direct pressure, both men and women challenge the wishes of their clan leaders from time to time. Given the communal hierarchy, parents and elders expect children to obey them, and they punish (often corporeally) those who disobey. The farmers also cultivate physical strength in their children, and during conflicts unrelated to obedience, parents often encourage children to defend themselves physically. (They say such things like "grab that stick" and "go get him!") For the same reason, parents encourage children to interact with other children, reporting in our interviews that they believe their children spending time with other children makes them strong and courageous.

The Bofi farmers have a distinct age and gender hierarchy. Boys and men enjoy more formalized status and power within the village social organization than girls and women. Bofi farmers are strictly patrilineal and patrilocal. The villages are organized by patrilineal clans and led by male clan chiefs and a male-elected village chief. Villagers accord these elders respect and deference. The same patterns of behavior holds true for children—the Bofi farmers expect younger children to obey older children. These age and gender hierarchies also dominate Bofi marriage—a formal agreement between the couple and the couple's parents. After the exchange of a bride price, usually including money, clothing, and domestic animals given by the husband to the bride's family, the wife lives with her husband in his kin group.

In keeping with this gender hierarchy and sexual division of labor, their elders give girls and boys directives about what they should be doing, telling them, for example, to help a mother in the fields. Though we have not systematically studied the social learning of gender roles, we think it likely that Bofi farmer children learn about gender from direct instruction, observation of adults and older children, becoming familiar with village and clan hierarchies and politics, and from interaction with other adults and children. (For more extensive descriptions of the Bofi farmers see Fouts, Hewlett, and Lamb 2005; Fouts and Lamb 2009).

Results

Figure 1 provides the rates we observed of social play with same-gender and different-gender children relative to total social play with children (i.e., the codes

I-Play-J same gender and *I-Play-J different gender*). A 2 (cultural group) X 2 (age of child) X 2 (gender of child) repeated measure MANOVA of social play partners (same-gender and different-gender) revealed the main effects for children's age Wilks's $\Lambda = .902$, $F(1, 48) = 5.24$, $p = .03$, Cohen's $f = .33$, children's gender Wilks's $\Lambda = .888$, $F(1, 48) = 6.07$, $p = .02$, Cohen's $f = .35$, and a nearly significant main effect for cultural group Wilks's $\Lambda = .932$, $F(1, 48) = 3.48$, $p = .07$, Cohen's $f = .27$. There were no significant interaction effects between focal children's age, gender, and cultural group.

With respect to cultural group, Bofi farmer children played with children of their same gender and children of a different gender in patterns that differed from the same behavior in Bofi forager children. Specifically, farmer children proved more likely overall to play with children of their same gender than children of a different gender, $t(20) = 2.91$, $p = .01$. However, overall, forager children did not play with children of their same gender significantly more often than children of a different gender.

With respect to children's age, three- to four-year-olds were much more likely overall to play with children of their own gender than with children of a different gender, $t(32) = 2.72$, $p = .01$. However, one- to two-year-olds played with children of the same gender and of a different gender for proportionately similar amounts of observations. Likewise, among the Bofi farmers, three- to four-year-olds played with children of their same gender more often than with children of a different gender $t(10) = 2.84$, $p = .02$. But Bofi farmer one- to two-year-olds did not differ significantly in the extent to which they played with children of the same gender or of a different gender. In contrast, among the Bofi foragers, neither one- to two-year-olds nor three- to four-year-olds played with children of the same gender significantly more than with children of a different gender.

Gender also predicted children's play partners. Overall, boys were more likely to play with other boys than with girls, $t(26) = 2.99$, $p = .01$. In contrast, girls did not show significant preference toward playing with girls more than boys. This same pattern proved evident among the Bofi farmers in particular. Boys played significantly more with children of the same gender than with children of a different gender $t(9) = 3.14$, $p = .01$, but Bofi farmer girls did not show substantial differences according to their play partner's gender. Among the Bofi foragers, there were no significant differences among boys or girls in the degree to which they played with same-gender versus different-gender children. However, three- to four-year-old Bofi forager boys did play with boys more than girls

			Play with children of the same gender		Play with children of a different gender	
			M	*SD*	*M*	*SD*
Bofi foragers and farmers (n=56)			54.38	36.65	38.26	34.33
	1–2 year-olds		47.47	35.22	49.61	34.81
		Boys	51.98	37.89	40.96	36.42
		Girls	41.61	32.40	60.86	30.74
	3–4 year-olds		59.19	37.38	30.35	32.17
		Boys	76.99	30.46	18.48	23.08
		Girls	46.07	37.23	39.10	35.56
Bofi foragers (n=35)	1–2 year-olds		46.45	40.37	40.27	38.53
			37.75	40.60	54.67	42.23
		Boys	43.89	42.98	43.80	42.89
		Girls	27.93	38.95	72.07	38.95
	3–4 year-olds		51.60	40.27	31.76	34.35
		Boys	70.44	34.43	21.35	23.50
		Girls	38.55	39.97	38.97	39.49
Bofi farmers (n=21)			67.58	25.09	34.92	26.42
	1–2 year-olds		60.12	22.79	43.04	22.34
		Boys	64.94	27.09	36.42	26.78
		Girls	55.29	19.42	49.66	17.20
	3–4 year-olds		74.37	26.16	27.53	28.65
		Boys	88.78	19.35	13.31	23.97
		Girls	62.37	26.25	39.38	28.65

Note: Means represent the percentage of observation points that the child was engaged in social play with another child.

Figure 1. Social play with different partners relative to overall play with children

$t(8) = 3.12$, $p = .01$, whereas three- to four-year-old forager girls played with girls and boys for proportionately similar amounts of observations. Similarly, three- to four-year-old Bofi farmer boys played with boys more than with girls $t(4) = 3.90$, $p = .02$, while three- to four-year-old Bofi farmer girls did not play with girls significantly more than with boys. Despite the lack of significant differences

among three- to four-year-old girls for play with same- versus different-gender children, it is remarkable that three- to four-year-old Bofi farmer girls played with other girls approximately 60 percent more than with boys (62.37 percent and 39.39 percent of overall play, respectively). In contrast, three- to four-year-old Bofi forager girls played with girls and boys for nearly the same proportion of play (38.55 percent and 38.07 percent of overall play, respectively).

Discussion

Among both Bofi farmers and Bofi foragers, gender segregation became apparent by the age of three. Our findings support socialization and evolutionary theories that claim gender segregation in early childhood is a human universal (Maccoby 1998; Maccoby and Jacklin 1974; Pellegrini 2009). Interestingly, however, gender segregation was more prominent among farmers than foragers. Among the Bofi farmers, gender segregation was only apparent among three- to four-year-olds but not among one- to two-year-olds. Age-related gender segregation was not apparent overall among the foragers. In both cultural groups, three- to four-year-old boys showed significant gender segregation, while girls did not, and this is consistent with other studies of small-scale societies that have shown gender segregation as more prominent among boys than girls (e.g., Munroe and Romney 2006). This finding however, is not entirely consistent with studies in North America. Jacklin and Maccoby (1978) found that when thirty-three-month-old girls and boys were paired in a laboratory playroom, the girls tended to watch passively or to withdraw to their mothers, which implies that girls may partially be driving gender segregation by avoiding boys. This was not apparent in our study—girls did not differ significantly in how often they played with boys and with girls, regardless of their cultural group. La Freniere, Strayer, and Gauthier (1984) studied the emergence of same-gender affiliation in stable peer groups in an urban child-care center and found that girls began to show preference for same-gender peers before boys but that boys eventually showed stronger preference for same-gender peers than did girls. Our findings are quite distinct from studies among children in North America because it appears that Bofi farmer and Bofi forager boys prefer to play with same-gender social partners earlier than do girls. However, three- to four-year-old Bofi farmer girls played with other girls a great deal more often than with boys (62.37 percent and 39.38 percent, respectively), though this difference was not statistically significant. With a larger

sample, we may have been able to detect more subtle gender segregation among the Bofi farmer girls. Interestingly, Bofi forager girls did not show any signs of gender segregation at either age.

Our results suggest that subsistence and cultural patterns play a role in how gender segregation gets expressed. To this end, children in the Bofi farmer community seem to exhibit stronger gender preferences than children in the Bofi forager community. This difference may relate to the culture and the subsistence practices of their communities. In the Bofi farmer community, there is clear gender division in labor. Women are responsible for the majority of farming, child care, and household tasks; men are involved in village politics, hunting, and procurement of palm wine (predominantly used for social purposes). Furthermore, in early adolescence, girls are expected to help their mothers in all of these tasks and adolescent boys are allowed to roam freely with other boys during the day. Bofi farmers also more openly ridicule individuals who do not adhere to prescribed gender roles. We speculate that Bofi farmer children may be more attuned to gender role differences earlier than Bofi forager children. Even though Bofi foragers have distinct gender roles, they are more fluid and varied than the gender roles of Bofi farmers. First and foremost, many forager fathers become involved in the care of young children (Fouts, 2008), and husbands and wives cooperate overtly on a daily basis in subsistence and child-care tasks. Household tasks, for which women are predominantly responsible, especially the building and maintenance of huts, show the least amount of flexibility. However, it is not unheard of for men to build houses and cook. Thus, in an environment of more gender-role fluidity, Bofi forager children may find themselves less drawn to play with children of their same gender. An important area for future research would be the compatibility of play styles: Are there differences in same-gender behavioral compatibility between the Bofi farmer and the Bofi forager children?

In addition to the differences between the Bofi foragers and Bofi farmers in social play among same-gender children, Bofi farmers overall engaged in more social play with other children than did Bofi foragers, regardless of the gender of the play partner. This finding is consistent with previous research in these communities (Fouts and Lamb 2009), in which Bofi farmer children were found to be more likely to engage socially with other children than were Bofi forager children of the same age. This may be related to differences in socialization and child-care practices in each community. Around two years of age (around the time of weaning from breast-feeding), Bofi farmer children experience a major decrease in maternal care. Instead, older children (usually siblings or cousins)

take care of them. Furthermore, around this time, Bofi farmer mothers stop carrying toddlers to work in the fields and encourage toddlers to interact and spend time with other children.

Among the Bofi foragers, parents (usually both mother and father) remain the main care givers of children through ages three and four and often longer. In interviews, Bofi forager parents frequently remarked that they would not feel comfortable leaving their children in the care of another child or adolescent because their child might be left on the ground to cry. In contrast, Bofi farmer parents believe it crucial for children to play with other children. They say such play makes children "strong." They observe that forager children seem "weak" because they are not encouraged to be with other children and instead stay close to their parents. On the other hand, the Bofi foragers criticize the parenting style of the Bofi farmers. They—Bofi foragers—would not leave their children to cry so often, they say, and they observe that Bofi farmer children often grow up to be "loud" and "violent." Thus, the differing cultural practices and parental beliefs about child care may help explain why play with other children occurs more frequently among the Bofi farmer children.

Most studies of gender segregation have focused predominantly on social play and children's play groups among children in North America and Europe (Pellegrini 2009); comparatively little attention has been given to small-scale cultures. Nonetheless, our findings do not contradict the claims of these studies that by age three human children congregate with children of their same gender, a tendency more typical of boys than girls. But *how* gender segregation emerges appears to vary culturally. Where most Western European and American studies show clear gender segregation among boys and girls by the age of three, we did not detect significant gender segregation among girls at either age. Given the greater level of play among the Bofi farmer three- to four-year old girls than among boys the same age (though, not statistically significant), we might assume an emerging gender segregation. But, due to the limited age range and the cross-sectional nature of this study, we were unable to examine how gender segregation developed after three- to four-years of age in either group.

Our study is also limited in scope because we have used existing data designed for a larger study of child care and development. Furthermore, we had a relatively small sample size, and we studied only two cultural groups. Thus, our results should not be generalized to other contexts. Also we could not assess precisely the age of our children's play partners. Thus, we could not address the extent to which the age of play partners affected patterns of gender segregation.

Nonetheless, our study provides new information about the possible universality of the emergence of gender segregation in early childhood and how cultural beliefs and practices may play a role in such an emergence.

Even among the relatively gender-egalitarian Bofi foragers, gender segregation seemed apparent for three- and four-year-olds boys. Among the more gender-hierarchical Bofi farmers, gender segregation appeared clear among three- and four-year-old boys, a tendency more pronounced than among the forager boys. Evidence of gender segregation was not apparent in the social play of one- and two-year-olds in either community, lending support to the more widespread claims that, among humans, gender segregation emerges around three years of age, at least among human boys if not necessarily human girls.

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