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Socioeconomic Differences in Parental Communication About Location

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Abstract

This study explored whether parental directions about location differ by socioeconomic status (SES) and whether children's performance is associated with parental spatial directions. We designed a task in which parents hid a toy in one of five identical boxes in a small-scale space, and then verbally guided their children's search. Middle-SES (MSES) parents employed more language in general than low-SES (LSES) parents. However, groups used the same amount of spatial terms, suggesting that providing effective spatial directions is probably a matter of quality than quantity. Parents differed in the use of frames of reference; with LSES parents scarcely using them, which resulted in ambiguous reference. MSES parents showed a higher rate of person frames of reference and proximity terms, and their children performed better in the task. Our results suggest that spatial communication including person frames of reference combined with proximity information might be an effective strategy to communicate location.

Keywords

spatial language – spatial directions – socioeconomic status – parents – young children

1 Introduction

During daily parent — child conversations, parents frequently describe the location of objects; for example, "your backpack is *next to* the TV" or "the book is *on* the bottom shelf." Giving and following spatial directions is a common everyday task for children, as well as an important aspect of human spatial cognition.

Spatial cognition allows for adequate development in everyday life, such as giving directions to go in a certain direction or finding lost objects (Dollins & Mitchell, 2010). Also, spatial skills are involved in school learning and have been linked to successful performance in areas such as science, technology, engineering, mathematics, as well as in the development of scientific concepts and the externalization of spatial representations or cartographic systems (Lovell, 1986; Newcombe, Uttal & Sauter, 2013).

As far as socioeconomic status (SES), studies have shown SES-related disparities in early language environments (e. g., Hart & Risley, 1995; Hoff, 2003; 2013; Huttenlocher, Vasilyeva, Waterfall, Vevea, & Hedges, 2007; Peralta, 1995;

Rowe & Goldin-Meadow, 2009). Concerning spatial language, studies have investigated inter cultural differences (Alonqueo & Cid, 2012, Dassen & Mishra, 2010; Wassman & Dassen, 1998). However, few studies have been concerned with differences by socioeconomic level.

In the present study we examined whether parents with low and middle SES vary in the way they structure spatial directions to their children. We also explored how young children use such directions to locate an object. Our interest in SES parental communication with regard to location is related to the role of spatial language in children's spatial reasoning. Parents' use of spatial language has been shown to be variable, and this variability is an important predictor of both, children's spatial linguistic production and their performance in spatial tasks (e.g., Pruden, Levine, & Huttenlocher, 2011; Szechter & Liben, 2004).

In line with these findings, two questions guided this research. First, do parents with higher SES use more or different types of spatial directions when providing information to their children about the location of objects? And, if so, are these differences related to young children's performance? We hypothesized that middle SES parents use more and different types of spatial directions than low SES parents; and that these differences are related to children's performance in a spatial task.

While giving and following spatial directions are common activities in children's everyday routines, comprehending spatial directions can be challenging. When giving spatial directions, people have to identify the subset of spatial relations that are the most crucial for the listener to know, and decide the order in which to present them (Newcombe & Huttenlocker, 2003). Giving spatial directions also involves choosing between alternative frames of reference. For example, when asked where something is, a speaker can use a landmark (e.g., "it is next to the table"), or a person (him/herself or someone else) as a reference point (e.g., "it is right behind you").

Thus, in specific situations a given location may be coded in terms of multiple referents, and it is important for children and adults alike to know which referents the speaker is using to construct an accurate spatial representation.

Most studies have focused on how young children give direction to others (Craton, Elicker, Plumert & Pick, 1990; Plumert & Nichols-Whitehead, 2007). For example, Craton et al. (1990) examined developmental changes in preferences for person (i. e. self or listener) or landmark frames of reference when both are available. In that study, 4-, 6-, and 8-year-old children had to describe the location of a hidden object to a listener who was sitting on the opposite side of a small room. Participants could use the left-right dimension, the front-back dimension, or both. Person and landmarks frames of reference were also

available. Four-year-olds preferred to use person references to differentiate front-back relations (e.g. "it's in the cup close to you"), even when landmarks were available. These findings suggest young children communicate about the front-back dimension using person rather than landmark frames of reference.

Less is known about how parents give spatial directions to their children and whether young children use these directions to locate objects. In one study Plumert, Haggerty, Mickunas, Herzog, and Shadrick (2012), investigated maternal directions to locate a hidden object based on their children's age. They found that mother's use of reference frames was primarily governed by the relative proximity of the target object to the landmark and themselves when interacting with younger children (32 and 36 months). These results are in line with a large body of work showing that young children rely more on proximal landmarks than distal ones to remember locations (e.g., Acredolo, 1976; Newcombe, Huttenlocher, Drummey, & Wiley, 1998; Sluzenki, Newcombe, & Satlow, 2004). The study also revealed that older children (42 months) also make use of landmarks to guide the search. These results are consistent with evidence indicating an egocentric (viewer-based) to allocentric (externally based) shift in children's use of frames of reference, though the timing of this shift depends on the task (e.g., Acredolo, 1978; Acredolo & Evans, 1980; Piaget, 1954).

Here, we examined parental spatial directions exploring how parents with different SES communicate the location of a hidden object to young children and how well young children use these directions to find the object. We worked with children from 37 months (3 years, 1 month) to 57 months (4 years, 9 months) of age because children younger than 36 months have difficulties using relational information to code distance (Huttenlocher, Newcombe, & Sandberg, 1994). We did not include children older than 57 months because pilot testing showed that the task was too easy for them.

To examine parental spatial direction giving, we observed parent — child interactions in a search task specifically designed to elicit verbal spatial descriptions from parents. In this task, the parent hid a toy in one of five identical boxes displayed in a spatial array and then verbally guided the child to retrieve the object. The idea was for children to base their searches on parents' verbal directions. We hypothesized that parental spatial language as well as children's performance differ as a function of SES. Specifically, middle SES parents not only use more but different type of spatial directions than low SES parents. The differences in paternal spatial language are related to children's performance in the spatial task; with middle SES children performing better than their low SES counterparts.

2 Methodology

2.1 *Participants*

The sample consisted of 31 children (36 to 57-months-old, *M* = 49 months, *SD* = 6 months) with one of their parents (27 mothers, 4 fathers). The native language of the participants was Spanish. Data were collected in two large cities of the central region of Argentina. MSES parents and children were recruited from different kindergartens. First, we set an appointment with the directors of the institutions and the teachers to obtain permission to carry out the study. Then, we contacted the parents, explained the research and asked for their informed consent. LSES parents and children were contacted through the community and health centers of their neighborhoods. We visited the homes in order to explain the study and ask for parental informed consent.

The study was conducted in agreement with ethical standards set by the National Research Council of Argentina; these standards are in accordance with the international ones for this type of research.

Sixteen MSES dyads, with nine boys and six girls, and 15 LSES dyads, with four boys and 11 girls participated. The mean age of the children in the MSES group was 48 months, and of the LSES group was 49 months. The SES was determined following the guidelines set by the Permanent Household Survey (Encuesta Permanente de Hogares) implemented by the National Institute of Statistics and Censuses of Argentina (Instituto Nacional de Estadística y Censos — INDEC http://www.indec.gov.ar). The data was obtained by interviewing the father or mother concerning schooling, housing, occupation and income.

All parents in the MSES group (n=16) completed high school, and most of them (10) university education. The income level of the MSES families was well above the poverty line set by INDEC. Most MSES homes had two working parents who worked in their profession or in commercial activities. All MSES families lived in urban areas, and all children attended kindergarten.

As far as LSES parents (n=14), 10 have completed elementary school, three some years of elementary school, and one had no formal education The income level of the LSES families was well below the poverty line. Most fathers were unskilled workers or were unemployed; mothers (except for two who worked as domestic employees) did not work outside home. All LSES families lived in socio-economic marginal suburban areas in very precarious conditions. Most families received financial aid from the government. Only two children attended kindergarten.

2.2 *Materials*

We used a small search room (120 cm width × 100 cm high × 100 cm long) built with white fabric supported by plastic pipes. The front was opened so that the contents were accessible to the participants. Five identical boxes (14 cm × 14 cm) were placed in the space in a specific way: three boxes in a vertical line in the middle of the room, one in the back left corner and the other in the right front corner. The object to be hidden was a little stuffed toy. Figure 1 shows a photograph of the search space and Figure 2 a diagram of the search space with the position of the participants.

2.3 *Procedure*

All observations were videotaped. The observation of the MSES group took place in a quiet room of the kindergarten children attended, as parents did not agree to be observed at their homes. The observation of the LSES group occurred at children's homes, since only two children attended kindergarten. We took special care to make sure when the observations took place, no interruptions occurred. We observed the parent-child dyads one by one. During the observations, only the parent, the child and the experimenter were present in the room.

We employed a search task with five hiding events in which the parent hid a stuffed frog in one of the five identical boxes displayed in the spatial array; the child did not watch while the toy was being hidden. Then, the parent asked the child to find the toy with her or his help. Once the task ended, parents participated in an interview to obtain information about their education, occupation, housing and income.

Parents were told to give only verbal information (no gestures, like pointing) about the toy's location to help their children find it. We stressed that they should not move boxes or point at the target location. Since the boxes were identical, a parent could only use spatial information to guide the child's search, that is, it was not possible to identify a box based on any other characteristic rather than its location.

2.4 *Parental Spatial Linguistic Input and Children's Responses*

Each parent — child interaction was composed of four hiding events. Each event was divided into parental directions and child's search attempts. Children sometimes found the toy after hearing the first set of spatial directions while at other times, they received many directions.

When children did not retrieve the hidden toy after the second parental direction, it was quite common that they opened the boxes to find the toy. To control for this situation, we only coded spatial directions and children responses in the first and second search attempts.

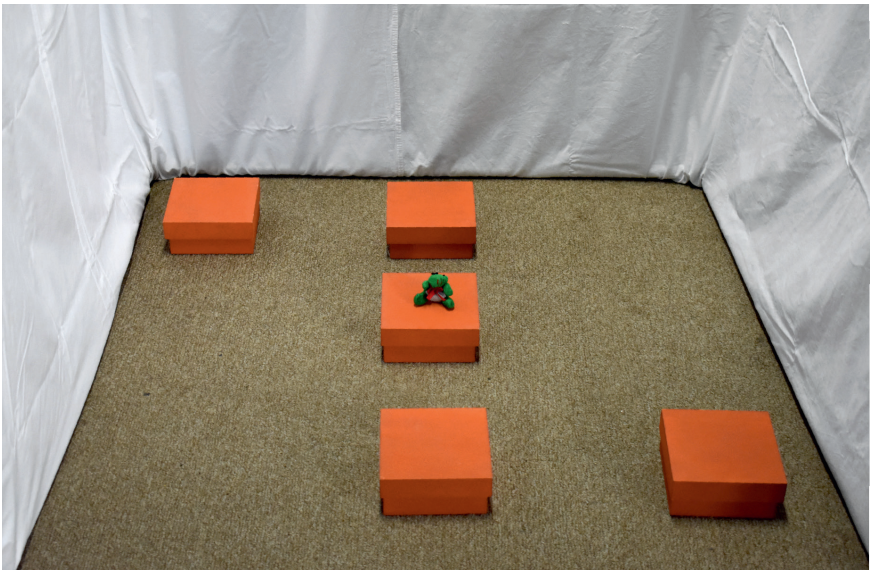

FIGURE 1 Photograph of the search space

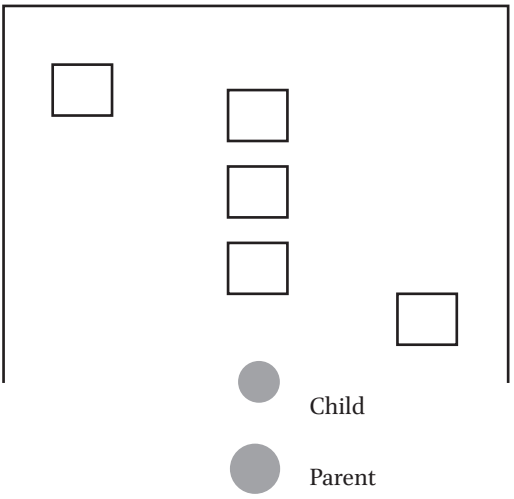

FIGURE 2 Diagram of the search space with the position of the participants

2.5 *Coding System*

Parental spatial directions and children's responses were transcribed from the video recordings and manually coded by the first author of this study. Parental spatial talk was coded as *spatial terms* and *frames of reference*. Based on Cannon, Levine, & Huttenlocher (2007), we divided the spatial terms employed by the parents into five categories (See Table 1).

The reliability was tested by having a second trained independent coder who worked on 25% of interactions. Interrater reliability was acceptable for both, parental input (*Kappa* = 0.81, p <.001, 95% CI=0.504, 0.848) and for children's responses (*Kappa* = 0.75, p <.001, 95% CI=0.504, 0.848). All disagreements were resolved through discussions between the experimenter and the independent coder.

3 Results

We examined parental spatial linguistic input in relation to SES and to children's performance. Our quantitative measures included the frequency of parental spatial language (linguistic frames of reference and spatial terms) and the number of children's correct searches. We analyzed first the differences in the frequency of occurrence of each category by SES using the *t-Student* test. We also employed *multi-level Poisson regression* for comparing the rates of spatial language across SES groups and logistic regressions to explore the relationship between the spatial category use and children's correct searches.

Table 3 shows the results found concerning SES differences in the use of parental spatial language (spatial terms and frames of reference) and in children's correct responses.

As shown in Table 2, the SES groups had a similar frequency of total *spatial terms* used (MSES M = 2.97, SD = 1.623; LSES M = 2.59, SD = 1.411, *ns*). *Vertical axis* (language such as "in front" or "in back") was one of the most common categories in both groups, with a mean of .59 (SD = .868) in the MSES group and .46 (SD = .785) in the LSES group, *ns*; closely followed by *middle*, with a mean of .55 (SD =.872) in the MSES group and .43 (SD =.684) in the LSES group, *ns*.

Continuous amount (number terms) and *corner* also showed a similar frequency in both groups (MSES M = .50, SD =. 816, LSES M = .48, SD = .831; MSES M = .39, SD =.809, LSES M =.36, SD=.072, respectively, *ns*).

Proximity (close, next to) was used significantly more by the MSES parents M = .44 (SD = .732) than by the LSES parents M =.13 (SD = .045, p=.002). Specifically, proximity was used 28 times (15%) by MSES parents and seven times (5%) by LSES parents.

TABLE 1 Coding system for spatial terms and frames of reference

Main categories	Categories	Sub-categories. Description	Examples
Spatial Terms	*Location and direction*	a-Proximity: terms that refer to a position proximal to a specific point (close, near, next to, hot).	"It is close to you" (Está cerca tuyo) "… near the corner" (Cerca de la esquina)
		b-Horizontal axis: terms that refer to a position that is along the intrinsic horizontal axis of an object (left, right, row).	"To your left" (A tu izquierda) "In the first row" (En la primera línea)
		c-Vertical axis: terms that refer to a position that is along the intrinsic vertical axis of an object (back, in front, above, below, column).	"In front of you" (En frente tuyo)
		d-Middle position: terms that refer to a location relative to at least two other objects or at an equal distance from the extremities of the space (between, middle, center).	"In the center" (En el centro)
	Continuous amount	Numbers terms (numerical value) or a term referring to an exact part of a continuous space (first, second, last).	"In the box number five" (En la caja número 5) "In the last one" (En la última)
	Spatial features	Terms describing the place where two or more sides of an object meet (corner)	"It is in one corner" (Está en una esquina)
	Deictics	Deictic adjectives (here, there).	"Over there" (Por allá)
	Other categories	Spatial terms that showed a very low frequency (straight, toward, etc.).	"Straight, straight" (Derecho, derecho)

TABLE 1 Coding system for spatial terms and frames of reference (*cont.*)

Main categories	Categories	Sub-categories. Description	Examples
Frames of Reference	*Person*	Using the parent or the child as a referent (parent and child shared the same viewpoint).	"… in the box closer to mom" "It is to your left"
	Environment	Using the objects of the space as referents or using the boundaries of the space as referents.	"In the box between the other two …" (En la caja entre las otras dos) "In the middle of the square" (En la mitad del cuadrado)

Horizontal axis (left, right, row) was also used more by the MSES parents (M = .33, SD = .668) than by LSES parents (M = .07, SD = .45, p = .038). In particular, *horizontal axis* had a frequency of 21 (11%) in the MSES group and four (4.5%) in the LSES group.

The use of *deictics* was used significantly more by the LSES parents, having a mean of .08 (SD =.270) in the MSES group, and .43 (SD =.1.093) in the LSES group (p=.015). *Other categories* were scarcely represented in both groups, but the LSES group tend to use more this category than the MSES group (MSES M = .09, SD =. 344 and LSES M = .23, SD = .660, p=.06).

With regard to the use of *frames of reference*, we found that that MSES parents verbalized more frames of reference M = .75 (SD = .113) than LSES parents M = .20 (SD = .483) (p= 001). On average, for every four references employed by MSES parents, LSES parents employed only one. Looking into the different kind of frames of references we found that while MSES and LSES parents used *external frames of reference* with similar frequency ((MSES M = .27, SD =. 076 and LSES M = .07, SD = .322, *ns*), MSES parents used significantly more *self-centered frames of reference* than LSES ones (MSES M = .48, SD = .096 and LSES M = 13, SD = .384, p = .005).

Concerning *children's performance*, the MSES group performed significantly more correct searches than the LSES group (M = .71, SD = .455; M = .52, SD = .504, respectively, p=.03).

TABLE 2 Parental linguistic input by SES

Spatial categories	MSES (n = 16)			LSES (n = 15)			T-test	
	M	*SD*	Sum	*M*	*SD*	Sum	value	*p*
Vertical axis	.59	.868	38	.46	.785	26	-.748	.456
Proximity	.44	.732	28	.13	.045	7	-3.121	.002*
Middle	.55	.872	35	.43	.684	24	-1.048	.297
Continuous amount	.50	.816	32	.48	.831	27	-.342	.733
Corner	.39	.809	25	.36	.072	20	-.432	.667
Horizontal axis	.33	.668	21	.07	.322	4	-2.100	.038*
Deictics	.08	.270	5	.43	1.093	24	2.46	.015*
Other categories	.09	.344	6	.23	.660	13	1.851	.067
Total ST	2.97	1.623	190	2.59	1.411	145	-1.34	.180
External FR	.27	.076	17	.07	.322	4	-1.602	.112
Self-centered FR	.48	.096	30	.13	.384	7	-2.840	.005*
Total FR	.75	.113	47	.20	.483	11	3.431	.001*
Total language	22.40	1.670	1463	14.62	11.574	819	-3.740	.0001*
Total spatial language	3.68	.260	237	2.79	1.558	156	-2.502	.014*
Children's correct searches	.71	.455	45	.52	.504	28	-2.118	.036*

In summary, our results indicate that when providing spatial directions about the location of an object, parents in the middle and low SES groups used a similar amount of *spatial terms*. The exceptions were *proximity* and *horizontal axis* which were used more by MSES parents, and *deictics* which was used more by LSES parents. Concerning the use of *frames of reference*, the groups widely varied, with MSES using them a lot more, specially *self-centered* ones.

Overall, MSES parents used more spatial language (spatial terms and frames of reference) than LSES parents. Nevertheless, as expected, MSES parents not only used more spatial language, they also used more language in general. Thus, in order to compare the rate of spatial linguistic input by SES we controlled for the total language produced.

In order to compare the rates of spatial language used in the two SES groups we used multi-level Poisson regression for data analysis. A separate model was fit to each spatial category. Each model included SES as a fixed effect, along with

random intercept and total number of words as an exposure term. All models were fit using the *glmer* function in the *lme4* package of R (Bates, Maechler, Bolker, & Walker, 2014). For each coefficient, *p*-values, profile-likelihood confidence intervals, and bootstrapped confidence intervals were examined; all three methods led to the same inferences.

Significantly higher rates were observed for *deictics* (B = -1.9, Z = -3.2, p =.001) in LSES compared with MSES parents. Significantly higher rates were observed for *proximity* (B = 2.35, Z = 2.03, p =.01), *horizontal axis*, (B = 2.4, Z = 2.2, p =.03), *self-centered frames of reference* (B = 2.35, Z = 2.04, p =.04), and *total frames of reference* (B = 1.17, Z = 2.8, p =.005) in MSES compared with LSES parents. Non-significant differences between the MSES and LSES groups were found for *vertical axis* (B = -.12, Z = -.31, p =.76), *middle* (B = -.29, Z = -.98, p =.32), *corner* (B = -62, Z = - 1.2, p =.22), *continuous amount* (B = -.36, Z = -.76, p =.45), *external frames of reference* (B =.75, Z = 1.4, p =.16), and other categories (B = -1.2, Z = -1.04, p =.30).

To test whether the MSES and LSES children differed in the number of correct retrievals, a mixed effects logistic regression with gender as a covariate was conducted. Results showed that MSES children correctly retrieved the object in a significantly larger proportion of trials than the LSES group (B = 1.06, Z = 322.3, p <.001)

To determine whether differences in the spatial category used could be partially responsible for the differences in the proportion of correct responses between LSES and MSES groups, a series of mixed effects logistic regressions were performed. Each regression considered a separate spatial language category, while controlling for the total number of words used. Each model contained a random intercept by participant. For each model, statistical inference was based on *p*-values and profile-likelihood confidence intervals. From the four spatial language categories that varied significantly across SES groups (deictics, horizontal axis, proximity, total frames of references, and self-centered frames of reference) only self-centered frames of reference and proximity showed a significant positive effect on correct performance (B = 1.29, Z = 1.73, p =.08, CI =.11: 3.2).

An analysis of the kind of spatial categories that accompanied self-centered frames of reference in each group indicated that MSES parents had a higher proportion of self-centered frames of reference combined with proximity information than LSES parents (82% vs. 25%, p =.05, Fisher's exact test).

4 Discussion

The present study was designed to address whether SES differences are related to parental descriptions about location, and whether differences in parental spatial descriptions are related to children's performance in finding an object. We focused on two aspects of parental spatial directions: linguistic spatial categories and frames of reference.

As expected, MSES parents used more language in general during the task, but they used the same amount of spatial terms. Based on evidence showing the benefits of hearing spatial language while performing spatial tasks (Casasola, Bhagwat, & Burke, 2009; Dessalegn & Landau, 2008; Loewenstein & Gentner, 2005; Kotovsky & Gentner, 1996), it can be expected that hearing more spatial terms would have a positive effect on children's ability to find the hidden object. However, our results clearly indicated that providing effective spatial directions seems to be more a matter of quality than quantity. In particular, spatial directions which included person frames of references combined with proximity terms (i. e.: "it's in the first box close to your foot"; "one of those which are closer to mom, but to the right") seemed to be more effective than the rest of the spatial categories.

On the one hand, the greater use of the left — right axis by MSES indicates a demanding strategy, as children usually do not effectively use the concepts of left and right until they are about 7-years-of age. Right and left concepts are usually introduced and very much used at school. The scarce use of these terms by LSES parents may be due in part to differences related to the spatial organization of the environment were children everyday life occurs and the scarce years of formal education of SES parents (Báez y Gómez, 2000; Alonqueo & Orellana, 2013; Boudon & Cid, 2012).

Another linguistic category that varied across SES groups was deictics, with "over here," "there" being mostly used by LSES parents. In the context of the present study, using deictics as a source of spatial information was an ambiguous strategy, especially when the frames of reference were not labeled.

The most relevant variations between SES groups were the use of frames of reference, which were more employed by MSES parents. It is worth noting that LSES parents almost never labeled frames of reference when guiding their children. Giving spatial directions requires decontextualizing thinking concerning the spatial relations that are needed to be communicated in order for children to infer the location of an object. The scarce schooling experience of the LSES group might explain, in part, these results. As research suggests, schooling leads individuals to develop more decontextualized ways of thinking (Cole, 1996; Wagner, 2010).

In the present study, external frames of reference were labeled more than person frames of references; however, children's correct searches were only positively related with person frames of reference. Interestingly, MSES parents associated these references with proximity information. This association is consistent with young children's preferences for coding location relative to the self (i.e., the egocentric to allocentric shift) and with reliance on proximal over distal landmarks to remember locations (Acredolo, 1976; Craton et al. 1990; Sluzenki, Newcombe, & Satlow, 2004).

Thus, the performance of MSES children may be explained, in part, by the greater use of person frames of reference combined with proximity information on the part of their parents. In line with our results, it has been demonstrated that young children are more successful in following directions that involve closeness to a person than to a landmark (Plumert et al., 2012).

These results suggest that when giving directions in a small-scale space, using person (the self or the listener) frames of reference might be a more effective strategy than using allocentric frames of reference. Why person frames of reference are easier than allocentric ones? As Plumert et al. (2012) pointed out; young children may readily understand references to themselves and others, particular when sharing the same viewpoint. In the developmental shift from coding location relative to the self to coding location relative to external landmarks, young children use people as landmarks before they use object as landmarks.

However, it must be noted that, overall, all children's performance on the task was quite poor; we believe this was related to the complexity of the searching space, which involved five identical boxes displayed in five different locations. In order to infer the target location, children not only needed to consider the distance between the target object (box in which the toy was hidden), from the referent (parent-child, box, wall), but they also in relation to other non-target objects (relative distance). This issue is consistent with evidence indicating that young children have difficulty; it is also consistent with studies in analogical reasoning, which indicate that young children have difficulty using relational information (Blades & Cooke, 1994; Gentner, 1989).

In summary, the results show that parents of different SES groups vary in how they structure their spatial directions to their children. The results found, to the best of our knowledge, are one of the very few evidences of SES differences in how parents provide spatial directions.

In general, our results suggest that socioeconomic background might be an important source of variability in parental direction-giving, which might in turn affect young children's ability to follow verbal spatial directions. However, more research is needed to determine the extent to which SES-related

differences in providing verbal spatial directions are also present in a natural environment. Also it would be important to include non-verbal directions, as people usually gesture while giving spatial directions. Another issue to consider consists in examining if mothers and fathers differ in the way they provide directions to their children and if the gender of the children has an impact on the directions they receive and on their performance. In fact, originally our purpose was to include mother and father as a variable, but it resulted quite complicated, almost impossible to recruit fathers for the study.

A limitation of this study is that the observations took place in quite different environments (MSES kindergarten, LSES homes). MSES parents prefer the observations not to be made at home, and LSES children did not attend kindergarten. Even though we tried to minimize the impact by creating a portable enclosure for the task and controlling for potential distractors, we acknowledge that the different environments could have had somehow affected the dyads behavior.

In closing, this research addresses the mediation of SES in parental verbal communication about location, it adds to the small but growing body of literature on the role of caregiver input in children's spatial development (e.g., Cartmill, Pruden, Levine, & Goldin-Meadow, 2010; Plumert, Haggerty; Mickunas, Herzog, & Shadrick, 2012; Szechter & Liben, 2004). In doing so, this work has generated new research questions, such as the influence of parent and child gender, cultural background, natural environments, or daily experiences. We expect these questions will inspire productive lines of inquiry in the field of spatial cognition and its impact in many fields of knowledge. Research It is important to consider that in school learning it is essential to use interpretive frameworks that take into account not only the previous knowledge of the students, but also the specific contexts in which growing and learning takes place (Pizzinato, 2010; Quintriqueo & Torres, 2011; Rogoff, 2003).

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