

Sinclair H. The transition from sensory-motor behaviour to symbolic activity.
Interchange 1:119-26, 1970.
[Université de Genève, Switzerland]

An observational study of infants shows that symbolic behavior occurs only after familiar objects have acquired social meaning (e.g., spoons are for eating) and some functional groupings (e.g., spoons, plates, cups) have appeared. What are the relations between cognitive, representative, and language-specific abilities? [The *Social Sciences Citation Index*® (SSCI)® indicates that this paper has been cited in over 40 publications. This is the most-cited paper for this journal.]

Hermina Sinclair
Université de Genève
1211 Genève 4
Switzerland

January 13, 1986

If I remember correctly, the paper was written in answer to an invitation from *Interchange* to contribute to their first volume. I had recently become involved in longitudinal and cross-sectional observational research on infants directed by M. Stambak (CRESAS, Paris). Excited by the results of our first analyses concerning the beginnings of pretend-play, I took the occasion to propose this rather theoretical paper.

Other CRESAS studies on infants playing with various materials followed,¹ telling us much about their capacities as pre-logicians and pre-physicists, but little about the communicative aspect of symbolic functioning, which was hardly surprising since they were acting on their own.

More recently, the CRESAS project developed to include studies of early peer interaction,^{2,3} revealing the surprising frequency

and structural coherence of interactional episodes from a very early age and contributing to our understanding of the increasing necessity for symbolic communication and the various ways children deal with it (at the ages studied, often nonverbally).

Meanwhile, many studies on early child language were published, most of which emphasized the importance of interaction between infants and their adult caretakers; some studies⁴ used, as I did, Piaget's theory of cognitive development as their theoretical framework. Many of the issues raised in the 1970 paper were clarified by these subsequent papers. However, I think that the basic questions asked about the links between symbolic representation, communication demands, cognitive development, and language-acquisition mechanisms still remain unanswered and await new theoretical syntheses integrating the different types of infant studies. Maybe the success of the paper was partly due to the fact that it raised such fundamental questions.

Probably, however, the main reason for the paper's success lies elsewhere. Though at the time of writing at least one excellent work on Piaget's psychological theory⁵ was already available in English, as were several of Piaget's own books, my brief and (I still think) basically correct digest of Piaget's views on early cognitive development and representation was no doubt useful to many who found the lengthier works heavy going.

Finally, I am pleased to report that by a happy coincidence the past was linked to the future; the *Citation Classics* notification about the 1970 paper arrived at the same time as a notification by the "Fonds National Suisse de la Recherche Scientifique" announcing a grant to I. Berthoud and me for an infant study concerning some of the issues raised in the 1970 paper.

1. Sinclair H, Stambak M, Lézine I, Rayna S & Verba M. *Les bébés et les choses*. Paris: Presses Universitaires de France, 1982. 200 p.

2. Verba M, Stambak M & Sinclair H. Physical knowledge and social interaction in children from 18 to 24 months of age. (Forman G, ed.) *Action and thought*. New York: Academic Press. In press.

3. Stambak M, Barrière M, Bouica L, Maisonneir R, Musatti T, Rayna S & Verba M. *Les bébés entre eux*. Paris: Presses Universitaires de France, 1983. 191 p.

4. Veneziano E. Vocal/verbal interaction and the construction of early lexical knowledge. (Smith M & Locke J L, eds.) *The emergent lexicon*. New York: Academic Press. In press.

5. Flavell J H. *The developmental theory of Jean Piaget*. Princeton: Van Nostrand, 1963. 472 p.