

The Microgenetic Analysis of Early Learning in Language and Spatial Cognition

The education of individuals for life in a modern society must take full advantage of our processes of learning and understanding. One goal is to determine the extent to which learning depends on what is being learned or is uniform across different domains of experience. For example, researchers in both Language Development and Spatial Cognition are calling for such analyses. We have captured the learning of one child in these two different domains over the same three-year period, in the form of a uniquely detailed weekly videotape collection of observations.

(1): Objectives and methods to be employed. Our goal is to complete the analysis of the learning that occurred in that period. Another goal is to make this entire corpus of information about infant/child development (along with our interpretations and theories) accessible to other researchers as a structured digital database designed for the development and comparison of interpretations and theories. Making this data useful will require a "microgenetic analysis" of what was learned-- and how-- in this detailed, three-year corpus. Such work is labor intensive-and, in the past, it was difficult to share. This will be both a resource to explore and study and a tool for others to use in independent analyses.

(2): Intellectual merit of the proposed activity. The value of studying the cases of individual subjects has been central to the research of important modern scientists, including Darwin, Freud, and Piaget. It has been fundamental in modern language studies as well. Single subject studies are sometimes discounted because access to the "raw" original information has been limited for various reasons. However, our organization of the details of behavior as video records now permits microscopic analysis of details of character and genesis of new behavior. This project will go beyond earlier interpretations of longitudinal studies and advance the state of the art in case study interpretation.

A deeper understanding of what happens within one child's cognitive self-construction will enable us to better design and create learning environments and educational materials (whether seen as instruction or as toys) for most children. In particular, better theories about how learning in infancy changes with time-and especially, about how developments of language skills are linked to the growths of other skills-should produce insights that can advance one of the central missions of modern society: to improve our education of older children as well.