Imagine a child who has never seen or heard any language at all. Would such a child be able to invent a language on her own? Despite what one might guess, the answer to this question is "yes". I have studied children who are congenitally deaf and cannot learn the spoken language that surrounds them. In addition, these children have not yet been exposed to sign language, either by their hearing parents or their oral schools. Nevertheless, the children use their hands to communicate—they gesture—and those gestures take on many of the forms and functions of language. The properties of language that we find in the deaf children's gestures are just those properties that do not need to be handed down from generation to generation, but rather can be reinvented by a child de novo. They are the resilient properties of language, properties that all children, deaf or hearing, come to language-learning ready to develop.

In contrast to these deaf children who are inventing a language with their hands, hearing children are learning language from a linguistic model. But they too produce gestures. Indeed, all speakers gesture when they talk. These gestures are associated with learning, they can index moments of cognitive instability, and they reflect thoughts not yet found in speech. I would like to raise the possibility that gesture might do more than just reflect learning—it might be involved in the learning process itself. I will show that encouraging children to gesture not only brings out ideas that the children were not able to express prior to gesturing, but can also teach children new ideas not found anywhere in their repertoire, either spoken or gestured.

Gesture is versatile in form and function. Under certain circumstances, gesture can substitute for speech, and when it does, it embodies the resilient properties of language. Under other circumstances, gesture can form a fully integrated system with speech. When it does, it both predicts and promotes learning.