The mind of the child: What neuroscience reveals about baby brains and learning

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The human capacity for language is considered a new frontier in brain science, one that is attracting a multidisciplinary team of scholars working in teams. Teams of psychologists, cognitive scientists, biologists, linguists, neuroscientists, speech and hearing scientists, and engineers working in "science of learning" centers are beginning to understand the biology underlying our linguistic capacities as well as the learning mechanisms that allow us to absorb the communication style of a particular culture. In this talk, I will describe what these science of learning teams are discovering: (i) that children bring innate skills to the language learning task, (ii) that the Critical Period for language learning may be the result of experience rather than merely time (maturation), (iii) that the brain mechanisms responsible for learning stem from an interaction between computational and social brain areas, and (iv) that early bilingual language learning alters brain structure fundamentally, and improves certain cognitive skills. Understanding how children accomplish the feat of learning not only one but also multiple languages may result in new biomarkers for developmental disabilities such as dyslexia and autism, as well as technologies that allow humans to improve their ability to learn a new language at any age. An understanding of humans' capacity for language may unlock the deepest mysteries and mechanisms of the human mind.