第 17 回発達科学研究会

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【タイトル】 In the eyes of an infant: Making sense of the visual world

【要旨】

The vision of a newborn infant is very limited at birth; the visual system undergoes a rapid development during the first year of life and continues to improve over a few years to reach adult level. As everything appears blurry in young infants' eyes, do infants perceive an organized visual world at all?

My talk will be divided into two parts. In the first part, I will briefly introduce my early work on the development of lightness constancy. Lightness constancy refers to the ability to accurately judge the reflectance of a surface despite changes in illumination. We found that lightness constancy is present in 4-mo-old infants when both a luminance ratio cue and a white anchoring point were provided. Infants failed a constancy test when either cue was unavailable. In the second part, I will introduce my recent work on the development of Gestalt principles, aiming to explore whether infants can use similarity principle to group visual patterns. Two kinds of similarity were employed in the study: topological and geometrical properties. We found that 3- to 6- month old infants can discriminate and group visual patterns based on topological difference, but not by geometrical difference. This finding is consistent with the developmental and learning view of the Gestalt principles in infancy.

Taken together, we are now confident to say that infants perceive a rather stable and organized world that is not "buzzing, looming, confusion" as William James (1890) has conjectured. Some forms of perceptual constancies and laws of perceptual organization are present within a few months after birth. Understanding the early development of perceptual constancy and perceptual organization may well provide important keys to decode a wide range of perceptual phenomenon, as they are fundamental achievements of human visual perception.