Children with immature intuitive theories seek domain-relevant information

Highlights

* Here we measured children’s learning preference for information in different knowledge domains, as well as children’s existing intuitive theory in each domain.
* Children who have mature theories show no preference between different domains of information.
* Children who are new to a theory are more likely to choose to gain information in the unfamiliar knowledge domain.
* Natural developmental changes in children’s intuitive theories shapes new learning.

Abstract

Learners are constantly challenged by the massive amount of information surrounding them. One solution is to be selective about what to learn. A growing body of research suggests that infants and children are sensitive to signals of information gain, such as surprise and anomaly. However, the value of a piece of information may also change as the learner knows more. How do changes that occur naturally in children’s intuitive theories contribute to their subsequent learning? Here we tested whether children who are at different stages of understanding an intuitive theory also differ in their interest in acquiring more information in the same domain. We tested children’s performance in three distinct domains, including intuitive biology, psychology, and beliefs about psychosomatic events. We found that children who were at earlier stages of their intuitive theories were more likely to seek out information in the related domain. This effect was not modulated by children’s age. These results are the first to show the relationship between natural changes in children’s existing knowledge and children’s future learning preferences.

Keywords

Active Learning; Information Gain; Intuitive Theories; Domain-Specific Knowledge

Introduction

Learners are constantly challenged by the massive amount of information surrounding them. One solution is to be selective about what to learn. A growing body of research suggests that infants and children are sensitive to signals of information gain, such as surprise and anomaly.

However, the value of a piece of information may also change as the learner knows more. How do changes that occur naturally in children’s intuitive theories contribute to their subsequent learning?

Children experience conceptual changes in multiple knowledge domains during preschool years. The current study focuses on three of such domains: children’s intuitive theory of other people’s mental state (Theory of Mind), intuitive theory about biological transmission and contagion (e.g., how people get sick), and intuitive theory about psychosomatic events (e.g., how being scared can cause stomach ache).

Here we tested whether children who are at different stages of understanding an intuitive theory also differ in their interest in acquiring more information in the same domain. We tested children’s performance in three distinct domains, including intuitive biology, psychology, and beliefs about psychosomatic events. We found that children who were at earlier stages of their intuitive theories were more likely to seek out information in the related domain.

Materials and Method

Results

Discussion

Reference: