Feature selection in category learning

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Abstract

Research examining mechanisms underlying human categorization has reported that when learning novel categories, adults tend to selectively attend to the diagnostic features, whereas young children allocate attention to multiple features. This study further investigated mechanisms underlying children and adults category learning by measuring their accuracy and response time in classification tasks. Participants were trained with categories that have a single deterministically predictive feature and multiple probabilistic features, and they were tested with items varying in the number of features. The results indicated that with sufficient training, both adults and children relied exclusively on the deterministic feature regardless of overall similarity. Importantly, a deterministic feature is both sufficient and efficient for learning new categories. Participants were as accurate and fast when classifying items with most probabilistic features missing as when classifying items with all features present. However, when the deterministic feature was inaccessible, their accuracy dropped, and response times slowed.