VSS Abstract 2018

Drawings as a window into visual concepts in early childhood

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In order to draw a “chair”, we need both to access a mental representation of this category and distill this representation into a the few strokes of a pen. These visual abstractions capture ‘high-level’ perceptual similarity relationships between object categories (Fan, Yamins, & Turk-Brown, 2017), depicting the key perceptual features needed to convey category membership. Here, we examine when children develop the ability to quickly produce these abstract visual representations. Children (*N* = 41, *M* = 7.15 years, range 4-10 years) participated in a drawing game on an iPad where they were prompted to draw one of sixteen object categories with a verbal cue (e.g., “Can you draw a cup?”). Children drew each object category for 30 seconds, after which they were prompted to either make another drawing or to stop drawing altogether. Afterwards, a group of adults (*N* = 16) were shown all 286 drawings and attempting to recognize each drawing by choosing between the original 16 object categories and 6 additional foil categories. We found that the recognizably of children’s drawings increased with age, despite a wide variation of variation across individual object categories and by individual children (percent drawings recognized; chance=4.8%; *M4yrs*=17%, *M5yrs*=47.9%, *M6yrs*=76.8%, *M7yrs*=75.8%, *M8yrs*=68.5%, *M9yrs*=75.0%, *M10yrs*=85.5%). This relationship held when accounting for the number of strokes, amount of ‘ink,’ and amount of time used to produce each drawing. These results suggest that by middle childhood we develop the ability to quickly produce visual abstractions that efficiently convey object category information, and broadly point towards visual production as a new avenue for examining the development of object category representations.

All drawings, analyses, and code available at github.com/brialorelle/kiddraw.