



# **The SAGE Encyclopedia of Lifespan Human Development**

## **Symbolic Representation**

Contributors: Angela Nyhout & Patricia A. Ganea

Edited by: Marc H. Bornstein

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The ability to understand and use symbols is integral to communication and learning. This entry provides an overview of symbols as something that someone intends to stand for something else. Symbols should bring to mind representations of their referents, even when the symbol and referent lack perceptual similarities. They may range from highly iconic (e.g., photographs) to highly abstract (e.g., language). Every day, we encounter a variety of symbol types from text written on a page to maps on a computer. Early on in life, children must contend with these different symbols types and determine their functions and referents. This entry discusses children's developing understanding of several symbol types. As will be shown, each symbol type presents unique challenges, and children's understanding of different symbol types develops in successive stages.

## Symbolic Understanding Across Domains

### Words and Language

To appreciate the symbolic nature of language, children must recognize that words or utterances *stand* for entities or events, even when they are not present. Before children begin speaking, they respond to language they hear from others. These early responses include carrying out actions or behaviors (e.g., waving) and pointing to labeled entities (e.g., "point to the doggie"), but they may not necessarily be symbolic. Children generally produce their first words around 12 months of age. There is debate, however, over whether these first uses of language are truly symbolic. Children may instead recognize a temporal association between a word (e.g., "doggie") and an entity in their environment (e.g., a furry four-legged animal). Stronger evidence that children appreciate the symbolic nature of words comes when they begin referring to entities in their absence or when they use words in simple sentences in the absence of those referents. The ability to combine words into sentences using grammar and syntax demonstrates that children understand the relationship between individual words (i.e., symbol-to-symbol relationships).

### Pretend Play

Pretend play is considered symbolic when it is clear that children intend through such play to represent an alternative to reality. Children spend much of their time engaged in pretend play, and this behavior emerges sometime around a child's second birthday. Early pretend play is often imitative (i.e., acting out something an adult has done) and may not be symbolic. Children may simply enact a sequence of events from memory without intending for their actions to stand for something else. When children engage in meta-discourse about a pretend episode (e.g., by declaring what they are pretending or by giving *stage directions* to playmates) or protest when a playmate violates a pretend rule, one can be confident that they are engaging in symbolic play.

### Pictures

Pictures such as illustrations and photographs are two-dimensional symbols of the real-world entities. In children's earliest interactions with realistic pictures, they treat pictures like three-dimensional objects, engaging in manual exploration (e.g., petting, rubbing, feeling), thus failing to grasp that a picture is a representation of an entity in the real world. It is not until about 18 months of age that children begin to grasp the symbolic nature of pictures, when they engage in referential communication (e.g., pointing, naming) toward pictures. Children's

early ability to generalize information they have learned from pictures to their real-world referents depends on how realistic the pictures are. At 15 months of age, children are able to generalize new words encountered in photographs, but not in less realistic depictions, such as cartoon drawings. By 18 months, they can generalize words even from cartoons. Children's ability to appreciate more complex symbolic functions of pictures does not emerge until later. For example, at around 2½ years of age, children are able to find an object in a room after having being shown its location in a picture of the room.

## Objects

Many types of objects can be thought of as three-dimensional symbols of real-world entities. Children's understanding of the symbolic function of objects emerges later than their understanding of pictures. This developmental pattern is presumably due to the fact that objects are more salient entities than are pictures. A classic measure of children's understanding of scale models as symbols involves showing children a room and a miniature replica room (scale model) that includes the same furniture and objects as the real room. Children are shown the hiding location of a toy in the scale model and then are asked to find the toy in the real room. It is not until age 3 that children succeed at finding the object. Prior to age 3, children's failure on the task likely reflects the fact that the scale model is too salient as an object and children do not recognize its representational function. When the scale model's status as an object is made less salient (e.g., by placing it behind a window) or more salient (e.g., by letting children play with it), they show earlier or later success on the task, respectively.

## Screen Media

Screen media such as televisions, computers, and tablets display a multitude of types of information, from ongoing events on live video chats to fictional events in films. Children show a *video deficit* in learning from video in comparison to live interactions and pictures. Relative to pictures, children do not succeed on word learning tasks or hiding tasks until a later age. Children's failure to learn from video is likely due to number of factors. Children have a tendency to categorize video content as *not real*. The impoverished nature of video stimuli relative to the real-world input also makes it difficult to extract relevant information from.

## Written Language

Quite some time after children appreciate the symbolic nature of spoken language, they come to understand the symbolic nature of written language. This is likely due to *what* is represented with written language. Before they are able to read, children must develop both *phonemic awareness*, the ability to identify individual sound units (phonemes) in spoken language, and letter–sound knowledge, the ability to identify the written letters that correspond to phonemes. Sometime between the ages of 3 and 5 years, children come to appreciate that written words represent specific spoken word forms, which themselves denote specific referents. Despite the challenges of this task, children recognize the symbolic nature of writing before they themselves are able to read.

## Differences in Symbolic Representation

### Special Populations

Symbols may present challenges beyond the early years to nontypically developing individuals. Those who are unable to communicate verbally (e.g., some individuals on the autism spectrum) may rely on pictorial communication systems. Therefore, it is important to understand the extent and limitations of their symbolic understanding. Research on children with autism suggests that they are less likely than their typically developing peers to extend newly learned words from pictures to referent objects. Their learning seems to depend on the iconicity of photos; they are better able to extend words from color photographs than line drawings.

### Across Cultures

The majority of studies on symbolic development have been conducted with children from Western cultures. Cross-cultural studies demonstrate, however, that symbolic understanding depends greatly on the amount of exposure children have had to a particular symbol type. For example, where pictorial symbols are found infrequently (e.g., traditional villages in Peru and India), children show later understanding of the representational nature of such symbols. Children in Tanzania who encounter picture books infrequently do not learn and transfer words from picture books until approximately 1 year later than toddlers in the United States do.

### Across Species

Examples of language-like communication among nonhuman animals are common and intriguing. Vervet monkeys, chimpanzees, honey bees, and many species of birds use some form of vocal or gestural communication. However, there is evidence of symbolic understanding only among a small number of chimpanzees raised in a linguistic environment with humans. These chimps were able to understand new combinations of symbols and identify relationships between different symbols. Interestingly, both chimpanzees and orangutans perform better than toddlers on video retrieval tasks. This difference may be because children judge information from television as *not real*, whereas apes do not make such judgments.

### What Is Required for Symbolic Understanding?

As we have seen, symbolic understanding varies greatly across different types of symbols. Symbolic understanding likely depends on a number of different experiences and developments. A major challenge for the learner is to appreciate the dual nature of symbols—they are not just entities in and of themselves but are also intended to point to and communicate about entities in the world—an ability known as *dual representation*. They must also understand intentionality, given that symbols are things that are *intended* to stand for something else. Children's understanding of intentionality undergoes significant development in the toddler and preschool years—around the same time that they begin to appreciate a multitude of symbol types. Symbolic development also likely depends on more general developments in children's information-processing capacity. As both the speed and capacity of their information processing grows, they are able to contend with multiple representations. Finally, as mentioned earlier, children's prior experience with different symbol types and the amount of social support they receive with an array of symbols strongly influences their symbolic understanding.

**See also** [Autism Spectrum Disorders](#); [Cognitive Development](#); [Early Childhood Development](#);

[Language](#); [Literacy](#); [Pretense](#); [Toys and Games](#)

- symboling
- children
- pretending
- representation
- chimpanzees
- videos
- symbolic play

Angela Nyhout Patricia A. Ganea

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#### **Further Readings**

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