# Concept Books and Young Children 

Ann D. Carlson

For the last twenty-odd years I have used concept books with children, listened to children's librarians talk about them, and read professional reviews of concept books. I had not given them much thought until recently, however, when the director of a preschool requested a list of concept book titles-she wanted to order them since many parents had asked that their children be taught concepts. When I sat down to draw up a list of recommended titles, I realized that I did not have clear answers to some basic questions:

- Is there a commonly accepted definition of concept books?
- What is a concept? How does concept learning take place?
- Are all concept books appropriate for young children? If not, which ones are?
- When should concept books be used with young children?
- How should adults use concept books with young children?

This chapter is the result of my attempt at finding answers to these questions.

## WHAT IS A CONCEPT BOOK?

After a review of the literature in librarianship and early childhood education under the heading of concept book drew a blank, I went back to a recent article by Frances Dowd and Donna Lyday in which the authors draw upon Charlotte

Huck's definition: "Although the meaning of concept book is usually implied rather than stated, the term designates titles which describe various dimensions of an object, a class of objects, or an abstract idea" (67). However, the term abstract idea is so inclusive as to render this definition useless. For example, fairness is surely an important abstract idea most children grapple with at some point. Would a book that addresses the concept of fairness be a concept book? Most working librarians would not consider such a book a concept book.

Bernice Cullinan, in Literature and the Child, writes that a concept book, which usually does not contain plot, characters, or dialogue, is really a young child's first informational picture book. While this is true of some concept books, it does not hold true for most. As elaborated later in this chapter, some of the concepts that form the core of many concept books, such as one-to-one number correspondence, are typically acquired toward the end of early childhood (around seven years of age), almost certainly after children have been exposed to a wide range of informational picture books. Some concept books could indeed be a child's first informational picture books; but most, if used at a developmentally appropriate time in the child's life, would come after the exposure to simple informational books.

Not finding a satisfactory definition of the term in the literature, I turned to library school students and faculty and practicing children's librarians for a definition. Responses from the twenty students and faculty members suggested that they did not have a clear notion of what a concept book is. The eight practicing children's librarians I queried, however, were fairly clear about what types of books are included under the genre of concept books even though they could not offer a simple, clear definition of the term. All of them considered those books that focus on specific categories as concept books. The categories listed in their responses included books dealing with number and counting, shapes, sizes, colors, and the alphabet. For the purposes of this chapter, I put together the following working definition: a book intended for young children (i.e., under 5) that focuses on colors, shapes, sizes, number and counting, and the alphabet.

## WHAT IS A CONCEPT?

Before we address the question of whether concept books are appropriate for young children, we need to make a digression into developmental psychology to see how the term concept is defined, and, more importantly, how concept learning takes place.

A representative definition of concept is an "idea of a class of objects, or a relation, normally expressed by a word" (Beard ix). The Encyclopedia of Education defines the term concept learning as "any activity which requires a subject to group two or more objects or events together" (408). This classification activity of grouping two or more objects or events together is assumed to lead to the development of categories, or concepts, so that when a new or different object is presented, one can correctly classify it as an example or nonexample of the concept.

The fact that children learn concepts is self-evident. They are not born with the knowledge that poodles and Great Danes are both dogs or that watermelons and blueberries are both fruits. On the surface, concept learning seems a fairly simple process: A child needs only to attach the verbal label to an object. In fact, early research into concept learning focused on very simple concepts where a single attribute or characteristic defined the concept. Up until the 1950s, most researchers supposed that learning a concept was no different from learning a word.

This idea was challenged, however, when Jerome Bruner and his colleagues published A Study of Thinking in 1956. In the introduction, Bruner and Jacqueline Goodnow state that the book was an effort to deal with one of the "most ubiquitous phenomena of cognition: categorizing or conceptualizing" (viii). They point out that any category or concept has two basic features. The first is the obvious differentiation of the relevant from the irrelevant attribute properties. The second, and noteworthy, feature is the way the relevant attributes are combined to define which events are instances of a concept.

For example, consider how a child might learn the concept of a car. First, a car is something that has tires as well as a steering wheel. Here are two relevant attributes, tires and steering wheel, and a rule that combines the attributes,
namely, that both tires and a steering wheel must be present. The fact that the car is yellow or that it has two as opposed to four doors is an irrelevant attribute, since it is not necessary to the concept of car.

Bruner and his associates discuss why categorizing is important. To understand the importance of categorizing, imagine a hodgepodge of structures, some of which are houses and some garages. Once we have mastered these categories, we do not need to learn that the never-before-seen structure in front of us is another house. If we have mastered the concept of house, new examples can be recognized with ease. Thus, the main function of categorizing is to reduce the complexity of our environment. Using abstraction and defining attributes allows us to make groupings. The use of categories, in turn, reduces the necessity for constant learning, and the category becomes a tool for further use. As Bruner says, "the learning and utilization of categories represents one of the most elementary and general forms of cognition by which man adjusts to his environment" (2).

Since the pioneering work of Bruner and his associates, the field of conceptual learning has continued to evolve, and hundreds of empirical studies of conceptual behavior have been conducted. Later work has elaborated on two issues of importance to our discussion. The first is that concepts vary in their degree of complexity. It is obvious that an attribute, such as a color or a shape, is itself a concept. As such, the concepts of color and shape cannot be reduced to a combination of other attributes and might be called simple concepts. The complexity of a concept increases as the number of attributes and their combinations grow. As an example, suppose that a young child knows the names of the colors red and green and the names of the shapes square and triangle. Would the child, therefore, be able to sort red squares, green squares, red triangles, and green triangles into four separate categories? As one might suspect, this two-dimensional concept problem is considerably more difficult for a child to solve than the one-dimensional concepts of color and shape.

Secondly, even though my discussion has focused on class concepts-those which help to determine whether or not an object is a member of a class-there are other types of concepts. Concepts which prescribe spatial orderings, such as numerical sequences and one-to-one correspondence
(counting) and seriation (ordering by sizes) are especially pertinent to the topic of concept books. The nature of these concepts will be discussed in the next section.

## WHICH CONCEPT BOOKS ARE APPROPRIATE FOR YOUNG CHILDREN?

Before we examine the appropriateness of various concept books for children, it is instructive to look at how young children might learn a concept. Children are often able to say words long before they have a complete understanding of their meanings, that is, before they know the underlying concepts. Consider children learning the concept of cat. In their everyday lives, most will encounter objects, some of which are examples of the concept (large cats, brown cats, shorthaired cats) and some of which are not (squirrels, chipmunks, small dogs). Children may mistakenly identify a squirrel as cat, or they may err in the other direction and identify a short-tailed cat as a dog. Both kinds of errors will be corrected if an adult or older child helps the child. With time and feedback, children learn to make fewer and fewer errors.

It is obvious that books on cats intended for a young audience would help children identify and label cats. What about concept books that are about colors, the alphabet, shapes, numbers and counting, and sizes?

## Books on Colors

Even though discrimination between yellow and red is accepted as innate, and the same wavelengths of light produce the same color categories in people, the naming of colors needs to be learned. Names of colors are simple concepts, and ones that children about 15 months and older can grasp. Therefore, books intended to teach the names of basic colors, such as red, blue, green, etc., are appropriate for toddlers and preschoolers, assuming that the colors are accurately reproduced in the books. Naturally, books on mixing colors to create new ones or books dealing with slight gradations of colors would not be appropriate until children are older.

## Alphabet Books

Two different issues come to mind regarding alphabet books. The first is whether a book is designed clearly enough for the objects to be correctly recognizable by children. The second is whether alphabet books are useful even when they are well designed.

Regarding the issue of design, my recent experience with an alphabet book in a kindergarten class is not unusual. On the N page was a beautiful illustration of a nightingale. As I led with " N is for . . .", the class responded in unison with "bird." In this group of 24 five- and six-year-olds, not one of them responded with "nightingale."

An examination of a handful of alphabet books makes one wonder about their designers' intended audience: $A$ for armchair or $Y$ for youngsters (Mayers)? $K$ for blue string tied in a knot or $Y$ for the yolk of an egg cradled in an open eggshell (Bunting)? It becomes clear after using these alphabet books with young children that many serve as devices for museum curators, photographers, or illustrators to display their art; selection of objects that a young child can readily identify and that represent the desired letter of the alphabet is all too often neglected.

Claire England and Adele M. Fasick in Child View: Evaluating and Reviewing Materials for Children confirm my belief about educational usefulness of most alphabet books:

> Alphabet and number books appear to be educational books although alphabet books are not important in learning to read, and many are really exercises in art. The anamorphic alphabet by Mitsumasa and Masaichiro Anno, which can be properly viewed only in an image reflected by a cylindrical mirror, is an extreme example of this type. It is a technical success and artistic pleasure, but is not a book for young children and should not be reviewed as such (59).

More important, it is dubious whether such books are useful even if the objects are clearly recognizable since young children do not understand the concept of first letter. The situation is further complicated by English spelling where an initial letter can correspond to different sounds (phonemes) in different words (e.g., $c$ in cat versus church) and different ini-
tial letters can sound very similar or the same (e.g., c in cat and $k$ in kangaroo). Thus, grouping by common initial sounds is unreliable, and the child is confronted by groupings based on artifacts of English spelling.

Since children are almost certainly incapable of understanding the notion that an alphabet book illustrates groupings of objects by their common initial letters until after they have begun reading, trying to introduce the concept of first letters of words to young children through alphabet books is futile.

In spite of alphabet books' questionable educational value of teaching the alphabet, most children greatly enjoy using them with an adult. I maintain that an alphabet book, that typically includes clearly illustrated or photographed objects, simply serves as a prop for a turn-taking game-ritualized dialogue-between the child and the adult, a subject that is discussed further below.

## Books on Shapes

Identifying and labeling simple geometric shapes is a simple unidimensional concept like colors. Books whose purpose is to teach young children the names of simple shapes are developmentally quite appropriate for toddlers and preschoolers.

While toddlers are capable of learning shapes, one should be cautious in interpreting apparent evidence to that effect. I have seen toddlers and preschoolers who could readily identify simple shapes, such as triangle or square, in a frequently read book completely stumped when I drew the same shapes on a sheet of paper. This is probably because the children memorize the pairings of names and forms in the books but do not yet understand the concept of triangle or square. Of course, such caution is also advisable in other similar situations of concept learning.

## Number and Counting Books

At first blush, number books where objects represent the pictured and spelled-out numeral seem straightforward enough. This is because we often incorrectly assume that children understand one-to-one correspondence, which is fundamental to a child's understanding of number and quantity, when
they point to objects on the page of a book and say "one, two, three" and move their fingers in correct timing. In fact, this kind of verbalization is not evidence that they understand the concept of number.

In an article in Carmichael's Manual, Jean Piaget called activities for the rote teaching of numbers "untimely pedagogical interventions." He cautioned against "parents who teach their children to count up to 20 or 50 before they can have any concept of number" and suggested that "in many cases, such premature acquisitions in no way affect the [developmental sequence] specific to the construction of integers" (712).

Piaget showed that the concept of number, or one-toone correspondence, develops gradually. For example, at about four years of age children can put out on a table the correct number of flowers needed to place one into each vase, but if the flowers are removed and bunched together, the children say that their number is reduced. Likewise, if the flowers are removed from the vases and spread out, their number increases. At around seven years of age, children stop believing that number changes if there is obvious correspondence between the number of flowers and vases.

The above example demonstrates the difference in reasoning between most three- and four-year-olds and most seven-year-olds. Typically, three- and four-year-olds base many of their judgments on their immediate perceptions, usually focusing on only one attribute of an object at a time. Most seven-year-olds, however, have developed the logical ability to look at several attributes before making a decision. To use Piaget's terms, the thinking of the two- to four-yearold is at the preoperational stage whereas the thinking of the seven-year-old is at the concrete operational stage (Psychology 29-109).

Jean Piaget has described a number of fundamental differences between the logical abilities of children at the preoperational and concrete operational stages. ${ }^{1}$ He maintains that by the time most children are seven years old, and, therefore, in or entering the concrete operational stage, they can distinguish two types of knowledge: that which is true based on perceptions and that which is true by deduction. Before this time, when children are in the preoperational stage, they only have knowledge based on perception.

The differences can best be illustrated by describing typical responses made by preoperational children and concrete operational children to situations involving conservation, a Piagetian term denoting the recognition of the constancy of characteristics such as number or volume despite changes in appearance. Conservation of number, in this case one-to-one correspondence, is involved in the example about the flowers and vases. Basing their response on their perceptions, children at the preoperational stage are likely to say that there are more flowers "because it's long." For them, words like more and fewer and same refer to a spatial dimension and not a numerical count. As Piaget said, "If the child has not yet reached a certain level of understanding . . . counting aloud has no effect on the mechanism of numerical thought" (Piaget and Szeminska 63).

On the other hand, older children are likely to say, "There are the same number of flowers and vases. They were the same at the start and now you have only moved the flowers further apart." Such an answer is typical of those who understand that once two sets of objects have been made equal in number, no amount of rearrangement in space will alter that equality. Children who understand this are said to have achieved the operation of one-to-one correspondence, which implies that they rely on their own reasoning and hold to what they know rather than being swayed by what they see.

The test for conservation of liquid is probably the best known Piagetian experiment. It is described in detail in The Child's Conception of Number. An adult experimenter is seated at a table with a clear glass pitcher of water, two identical clear glasses, and one clear glass that is taller and thinner than the pair. Children are in front of the table watching the adult fill the identical glasses with water out of the pitcher. The adult typically asks the children, "If this glass is yours and this glass is mine, would you have more to drink or would I have more to drink or would we have the same?" Most children, regardless of age or developmental stage, answer that they would have the same. Then the adult, in view of the children, would pour the water from one of the identical glasses into the tall, narrow glass and ask the children the same question asked when the identical glasses were filled.

The common answer from preoperational children is that the tall glass has more "because it is higher." Concrete operational children would respond that they were the same since no water had been added or taken away. Children at the preoperational stage are unable to conserve. Their responses are bases on visual cues and focus on one attribute-in this case, length or height-rather than coordinating several, and they cannot reverse their thinking to consider the original state.

Children at the concrete operational stage, however, are able to conserve. They would justify their responses, in the above cases, by reversibility (returning mentally to the flowers and vases) or compensation (seeing that one attribute, such as height, is balanced by another, such as width). In other words, these children can rely on thought.

In summary, the concept of number is rather complex and cannot be taught to children who have not reached the stage of concrete operations, which usually happens around seven years of age. Yet, formats of most concept books whose evident purpose is to teach numbers to young children are too young looking for seven-year-olds, and, consequently, the books tend to be used with younger children and toddlers. Adults probably believe that the rote recitation of numbers implies knowledge of the underlying concept. Piaget disagrees and would probably suggest a simple picture story book instead.

## $\underline{\text { Books on Sizes }}$

Books that focus on teaching sizes or seriation, which typically picture objects arranged in sequence according to size, may also seem fairly straightforward. Piaget says, however, that seriation or serial correspondence is an even more complicated numerical process for children than one-to-one correspondence.

In his experiments, Piaget used ten wooden dolls of varying height, the tallest being twice as tall as the smallest. He asked the children to put them in order according to size. Three- and four-year-olds were unable to complete the task successfully. In contrast, the concrete operational children were able to carry out the task with speed and confidence. Their lack of hesitation suggested that they knew what the
series would look like even before making it (Piaget and Szeminska 97).

In my own work with three- and four-year-olds, I have noticed that children are able to work with categories involving simple opposites, such as big and small or tall and short. While they readily become confused by levels of gradation, they are capable of comparing two objects with opposite attributes.

Are books that focus on sizes appropriate for toddlers and preschoolers? Books that include many levels of gradation certainly are not, but those that depict opposites are. It should be kept in mind that such books teach young children labels for the gross categories, such as short and tall or big and small, and not an understanding of seriation.

## Miscellaneous Other Concept Books

In addition to the already described books that make up my working definition of concept books, publishers are producing an increasing number of other types of concept books, that, judging from their format, are intended for young children. It should be clear from the above discussion that those which provide labels for visual recognition of basic colors, shapes, and opposites are appropriate. Most others, unfortunately, are not.

Paper books intended to teach or reinforce tactile labels are very nearly useless. Children learn the names of textures, such as smooth or rough, through repeated experiences touching textures in their own surroundings. So, homemade books constructed with pieces of sandpaper, soft fabric, rough burlap, and the like can be used to advantage.

Books intended to teach kinetic labels are entirely useless. Children learn concepts of fast and slow from firsthand experiences, not from pictures in books. A recently published board book for toddlers is meant to illustrate the concepts of fast and slow: the photograph of the car moving slowly is in focus while that of the car moving fast is blurred. An appropriate title for the book would be In Focus, Out of Focus. This book is not useful as a reinforcing tool, either; the concept of slow and fast is not reinforced, merely the concept of a picture of a motionless object that is either sharp or blurred. Instead of using books, adults should talk about the concept
of slow and fast while their children are moving slowly and fast or watching objects, such as birds or cars, move slowly and fast.

Concept books that purport to teach aural labels are also of dubious value. Children learn the sounds they hear around them by listening, not by seeing pictures of them in books. This is not to dismiss books in which animals, for example, make their animal noises; that is a book about animals, and young children delight in naming animals and imitating their sounds. In contrast, books whose sole purpose is to teach the names of sounds are quite useless. For example, Ding Dong! And Other Sounds, a board book for toddlers, has a young child holding two hand chimes on its cover. The sound of the hand chimes is ding dong. Inside the book, the word "shake" appears next to the photograph of a child holding a pair of maracas. Of course unlike ding dong, which is a sound, shake is an action.

A book like this is subject to criticism on at least two fronts. First, it is unlikely that young children can learn the sounds of instruments by seeing captioned photos of children holding the instruments. Second, while a conceptual unity-sound-does exist, the labels are ill-conceived in that some labels are for sounds while others are for actions.

Like many other books intended for toddlers and young children, this book would have been much better with photos alone. An adult and child would then be able to look at the photos of children with various instruments, make the sounds they think the instruments would make, and talk about the sounds.

## WHEN SHOULD CONCEPT BOOKS BE USED WITH YOUNG CHILDREN?

The answer to this question depends upon the focus of the book and the expectations adults have about teaching the concepts. Children as young as 15 months of age may be able to identify some colors and shapes they see in often-repeated books on colors and shapes since, out of all the concepts in the books looked at here, colors and shapes are the simplest.

On the other hand, while some 15 -month-olds may be able to recognize and say the letter A or B, the concept of a first letter representing an object is almost certainly lost on
them until they are able to understand abstractions. Likewise, while some two-, many three-, and nearly all four-year-olds can readily count up to ten or twenty in quick succession, this does not reflect real understanding of the underlying concept. Instead, the recitation is a series of verbalizations and may be associated with an activity, such as counting to ten in preparation for running or kicking a ball. If adults want to teach their young children the concept of first letters representing the names of objects, the concept of seriation, or the concept of numbers, they would do best to wait until the child is cognitively ready, which is usually when he or she is beyond the preschool years.

As we try to evaluate the appropriateness of a concept book for a given age group, we should not lose sight of children's need to make discoveries about their world firsthand. It is not enough for them to look at pictures in books. As children handle materials in their play, experiment with equipment, make discoveries, and visit places of interest, they reach out with their senses in an attempt to understand their surroundings. Children who have built a base of experience and are able to see relationships among them are able to form abstractions. For example, when children are actively handling materials and observing changes in shape and arrangement, or when they are comparing and contrasting objects they see and touch, they are learning about number. Young children must manipulate, order, and reorganize things such as toy cups and saucers (one-to-one matching) or nesting plastic bowls (ordering, seriation) before they can begin to understand the concepts of one-to-one correspondence, volume, and seriation.

Thus, many books are ideal tools for supplementing and reinforcing direct experience, not substitutes for them. Moreover, it must be noted that not all experiences-such as tactile, kinetic, and aural experiences-can be reinforced through the use of traditional books.

## HOW SHOULD ADULTS USE CONCEPT BOOKS WITH YOUNG CHILDREN?

Since most concept books do not have plots and dialogue, adults have a lot of leeway in how they can use them with
young children. They can talk about an illustration, let the child talk about it, or enter into conversation. This latitude renders concept books exciting to use with young children even when they are of questionable educational value for concept learning. Adults often use concept books with children as props for what Anat Ninio and Jerome Bruner call ritualized dialogue.

Ninio and Bruner studied the interactions over a tenmonth time span between a mother and her child who were using picture books. The child was eight months old at the beginning of the study and 18 months old at its conclusion. The purpose of the study was to investigate labeling, or the naming of objects and people. Even though the child at eight months is younger than the audience for which concept books typically are aimed, the study's findings may provide a useful technique that adults can use with concept books and young children.

Ninio and Bruner concluded that picture book reading, from the very beginning, had the structure of a dialogue. As an infant the child communicated by smiling, reaching, pointing, and babbling vocalizations, all of which were consistently interpreted by the mother as expressing the child's intention of asking for a label or providing one. As the child grew, reaching, pointing, and babbling diminished and were replaced by speaking. Ninio and Bruner observed that the child's participation in this ritualized dialogue, rather than imitation, was the major mechanism through which labeling was achieved.

Ritualized dialogue, also referred to as scaffolding dialogue and turn-taking in vocal exchanges, is a simple and undeviating game in which the adult and child take turns verbally. It is composed of four parts:

1. The attention vocative: "Look!" This is the beginning of the dialogue where the adult gets the child's attention.
2. The query: "What's that?" This is the labeling question posed by the adult to the child.
3. The label: "It's a $\qquad$ ." The child may provide the answer or, if necessary, the adult will.
4. The feedback utterance: "Yes." The adult will acknowledge the response and either talk further about the label or continue on to the next query. (6)

With an infant or young toddler whose productive language is limited, the adult would carry the dialogue forward; the adult would be scaffolding the dialogue since he or she would provide the overall language framework. With time and experience, children would more fully participate taking turns and eventually become equal partners in the interactions.

Ritualized dialogue is an excellent technique for adults to employ with toddlers and preschoolers when using concept books. For example, let us look at one page in One Gorilla, a superb book that focuses on finding the hidden objects, such as five pandas, and the ritualized dialogue between an adult and a two year old girl:

Adult turning the page and reading text: Five pandas in the snow and one gorilla.
Adult: Where are the pandas? Can you find them?
Two-year-old, pointing: Here they are. One, two, three, four, five.
Adult: Yes, what are they doing?
Two-year-old: They are in the snow.
Adult: Where's the gorilla?
Two-year-old, pointing: There he is.
Adult: What is he doing?
Two-year-old: He is walking away. ${ }^{2}$

Is the child learning the concept of number here? No, because she simply is not capable of grasping the concept of number yet. The child is learning how to talk about and interpret illustrations she is looking at with her parent. She is also learning that written words carry meaning. And, most significantly, she is probably finding the verbal interaction with her parent highly enjoyable.

## CONCLUSION

Many adults believe that concept books have considerable educational value and consider it important to teach young children concepts. However, it seems doubtful that most concept books are capable of teaching concepts. Children learn
concepts though firsthand experiences with objects. Books are better used as tools for supplementing and reinforcing direct experiences, not as substitutes for them.

Nonetheless, in spite of their dubious value as concept teaching tools, many serve as ideal vehicles for ritualized dialogue, a technique where an adult provides the framework for the adult and child to take turns verbally. It comes naturally to both adults and young children.

In The Preschooler \& the Library, I suggested to librarians that they tell parents and teachers to "recognize that activities designed solely to teach the alphabet or numbers are much less appropriate than providing a print-rich environment that stimulates language" (113). Concept books may become an important part of a child's print-rich environment, especially if they are used by adults to stimulate their child's language rather than to teach concepts.

## NOTES

1. Piaget believed that children reached levels at various ages. He clearly stated in his writings that ages are always average and approximate.
2. Two-year-old's dialogue provided by Zerrin Ann Dagli.

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