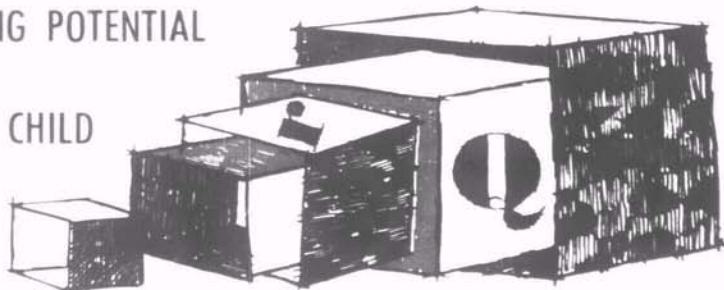


LEARNING POTENTIAL OF THE YOUNG CHILD



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CONSPICUOUS in the current flush of interest in the learning potential of young children is discussion of Piaget's studies of intellectual development. Much attention and research are focused on his stages of intuitive reasoning and of concrete operations. This analysis dramatizes the difficulty that children under about age seven have in learning and thinking about relationships of such concepts as volume, quantity, number, space and shape.

This paper focuses on the kinds of learnings that can be acquired by children age six and under, that is, in the period covering the approximate ages Piaget gives for his first three stages of intellectual development: (a) sensorimotor intelligence, (b) preconceptual intelligence, and (c) intuitive reasoning.

The beginnings of cognitive development are presented here in terms of the mental activities that provide continuity of process and experience throughout these and later stages. Although basically consistent with Piaget's philosophy, the terminology is essentially that of the cognitive psychologist. It

should be recognized that the very beginnings of cognitive development must be inferred and that any brief treatment risks oversimplification.

Beginning Cognition

As maturation of the associative areas of the brain permits, the infant begins to make sense out of his world. From the beginning, he must construct from his sensory experiences the meanings that he acquires. The business of learning is a "do-it-yourself" enterprise.

The child's first developmental task related to learning probably is to make gross *discriminations* between sensory patterns that capture his attention. As traces of *memory* begin to emerge, he develops a primitive sense of "same" and "different." The sense of sameness that gradually permits him to recognize a recurring pattern is perhaps the basis of his first *generalization*. Discrimination learning in all sensory areas continues to be important to intellectual development. By the time the child is age six, our society expects him to have developed sufficient powers

of audio-discrimination to be able to speak his native language reasonably well, and sufficient visual discrimination to achieve beginning success in the mastery of written symbols. Powers of making finer and more accurate discriminations increase well into adulthood.

As two or more sensory patterns recur for the infant in close succession and as gradually developing memory permits him to recognize and later recall them, these sensory patterns are likely to be stored together as memory images. He has made an *association*. Thereafter, as long as the bond remains unaltered, whenever the first sensory pattern appears, he is likely to expect the second. The second pattern thereby gives *meaning* to the first. The process of recognizing or interpreting any sensory experience at hand using the memory of previously associated experiences is *perception*.

Although the process of perception is apparently a simple mental process, it is basic to all learning. It mediates the meaning of all incoming sensory data in terms of the individual's past experiences, thus assuring that the new meanings he acquires will be integrated into the whole of his store of knowledge, his *cognitive structure* (or Piaget's "schemata").

The more abundant the child's sensory experiences and past associations, the richer his perceptions and the greater his learning potential will be. These early experiences of the pre-verbal period, formerly believed to be primarily significant for affective development, are now regarded as particularly significant in providing the foundation of intellectual development.

While the number of associations that a young child makes is enormous, the number of simple associations that he can hold in mind without interrelating and classifying them has been a matter of question and conjecture. Suggested limitations lead to the assumption that primitive mental processing of associations begins early. The associative area of the cerebrum, sometimes referred to as the *intrinsic* area of the brain as distinct from the *extrinsic* or sensorimotor area, is believed to be the area that organizes such sensory data.

Probably the earliest organization may be thought of as a network or matrix of interrelated associations. From the study of cybernetics comes the insight that later logical processing in the brain is similar in some respects to the logical programming of a modern electronic computer. Concepts, which are essentially sets of classified ideas, are the key products of this mental organization.

Concept Formation

Concept formation requires the ability to recognize a particular common factor or set of factors in a group of complex experiences. This is the process of *abstraction*, actually a form of perception. Classification is not complete without the generalization that *all* members of this set meet the test of the specific criterion. Babies between the ages of 12 and 24 months when presented with concrete objects that repeated more than one form tended to group these objects on the basis of like forms in the course of their spontaneous play.

Concepts develop slowly during this early deductive process of discovering

classes, accumulating positive instances, and rejecting negative ones. Piaget emphasizes the primitive quality of early concepts when he discusses "object concepts." Such nonverbalized concepts, valuable to a child in directing his own activity, are of limited use because they cannot be communicated.

A concept to be communicable must be represented by a *symbol* that is understood by others to carry the same meaning that the child intends. This symbol is usually a word. Symbols are aids to thinking that enable the individual to reflect upon objects or situations which are not actually present. In dramatic play the young child uses sounds, actions, toys and improvised structures as symbols for aspects of his experiences. *Symbolization* increases for the individual as language is acquired, as written symbols are mastered, and as thought patterns reach higher levels of abstraction.

While children often make up their own words as symbols for their concepts, it is obvious that for concepts to be educationally adequate someone must supply the proper word as he needs it. Concept formation and language development are mutually interdependent processes, for virtually every word other than proper nouns represents a concept. Words also help in conceptualizing experiences. The "what's that" stage of language development signals a particularly active stage of early concept discovery. In discussing "intuitive" thought, however, Piaget emphasizes that not before about age seven are concepts sufficiently firm and interrelated to permit logical reasoning in concrete situations.

As a child's fund of concepts learned

from direct experiences increases, he can begin to develop and extend concepts from vicarious experiences, especially from stories, pictures and direct conversation. Television has considerable potential in this respect. Children may also pick out unfamiliar words that they hear in various situations and inquire about their meaning. When concept learning starts with the *term* and proceeds with definition and illustrations it is learned *inductively*, more in the fashion of many later concepts met in school. The skill of teaching a concept in this fashion is in utilizing the child's concepts that are well formed and vivid for him to help him construct mental images of representative members of the new class or concept.

Implications for the Teacher

While young children cannot learn concepts and generalizations at a high level of abstraction, the teacher can do much to help them learn within the framework of their cognitive activities as already described. The following implications are pertinent:

1. Set the stage for abundant sensory experiences varied so as to promote discrimination learnings and abundant associations.
2. Provide abundant opportunities for self-selected learning activities especially of the manipulative and experiential types.
3. Provide many opportunities for children to observe work activities of adults so that they will have experiences to think about.
4. Encourage children with toys, other play accessories, conversations and art materials to symbolize their

experiences through play, art and language.

5. Direct children's attention to learning opportunities they may miss, to opportunities to use their previous associations, and to opportunities for abstracting common elements (e.g., "all blue things").

6. Provide an environment of simple language that helps clothe each child's experience with language while he is absorbing the experience.

7. Encourage each child to use the language that he has to clothe his own experiences in his own language.

8. Plan opportunities for experiences that will help children discover new concepts and redefine concepts already met, including differentiation of concepts.

9. Provide opportunities for vicarious experiences through stories, pictures and conversation that relate to recent direct experiences.

10. Pace learning opportunities, not too many at one time, for the group and/or for the individual child, so that clear images are possible, new learnings are reinforced to the point of usefulness,

and the hazard of overstimulation is avoided.

Be aware that the learning potential of the young child is increased by every opportunity he has to learn in his way.

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David H. Russell, class lectures, 1962.

Creative writing—

The Fourth Grade Teacher gave her class an assignment in "creative writing." "Write a composition for me," she said. "Write about an interesting event or a trip or something special you have done. If you don't know how to spell all the words, just write them as they sound to you." Here is one nine-year-old's first attempt.

I like to go fishing with my dad. One time he took me to North Carolina. Aunt Dot, Uncle Ray, mom, dad and me went Marland fishing. Do you know that it was even fun watching them catch fish? As far back as I can remember we caught some Dalfin and Anberjacks. After we got to the golf I fell asleep and got seasick. Mom did the same thing and got seasick. But mom and me still had a good time watching them catch big fish. But I can tell you one thing there was a lot of throgingup on that boat. Oh I forgot to tell you we had the best catch. The end

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