The Cultivation of Early Recognition Ability of Infants in Prelinguistic Stage

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Abstract—By using the symbolic system of music, art, action and so on, the language symbol system of infants and young children in the prelinguistic stage can be activated, so that infants and young children can read picture books while learning oral language. This saves a lot of time for the learning and development of early writing language and provides the opportunity for infants and young children to integrate and apply oral language and early written language. The systematic training method include: the relationship between instruction and action, the cooperation between recognition pictures and language, the combination of literacy and meaning, and the guidance of reading and sentence breaking.

Keywords—Prelinguistic stage; Infant; Early recognition ability; cognitive ability

I. INTRODUCTION

With the in-depth research of cognitive psychology on infant's initial learning ability, governments are paying more and more attention to the field of preschool education, in particular the far-reaching impact of reading on one's life. The United States government has implemented the early reading priority program. In the reading program implemented by the governments of the United Kingdom and Canada, the cultivation of children's awareness of writing is a key content. China's Guideline to the Learning and Development of Children Aged 3~6 states: "pay attention to high-quality early reading" and "guide young children to develop interest in life and reading activities. [1]" However, there are a few theories and researches on the cultivation of early childhood reading ability, and they only focus on the preschool stage of 3-6 years old. There is no systematic method to cultivate children's ability to read in prelinguistic stage (the time period from birth to fluent expression of short sentences)

As a symbolic system, language and characters can communicate and interact with different symbol systems such as music, art, and action, so as to realize the function of human expression. In the prelinguistic stage, although babies have no way to express themselves, with the help of their innate magical learning ability, we can use the symbolic system of music, art, and action to realize that children and young children can read picture books while learning oral language. This saves a lot of time for the learning and development of early writing language and provides the opportunity for infants and young children to integrate and apply oral language and early written language. At the same time, the effective combination of picture books, languages, art language and educational language [2] helps young children to develop in an all-round way in learning and reading, and lays a good foundation for the development of early reading and understanding ability.

II. A REVIEW OF INFANTS' COGNITIVE ABILITIES IN THE PRELINGUISTIC STAGE

Since babies in the prelinguistic stage unable to express their thoughts in language, by the early 20th century, most psychologists still believed that the brains of newborns are blank. However, J.Piaget observed that the development of infants' ability to accurately characterize material world depends on the gradual coordination of observation, listening and touch. Following J.Piaget, E.J. Gibson studied the integration of vision and sound in newborns and found that infants use the original mode of inquiry to obtain information about objects and events in the world of perception. L.Vygotsky proposed the concept of the zone of proximal development, that is, we should focus on the more capable parents and teachers to challenge and expand children's understanding ability.

With the development of theories and methods, Eimas et al. used non-nutritive sucking and habit developing methods to observe the response of four-month-old infants to phonemes. When babies hear the phoneme "ba", they suck the pacifier hard, then slowly lose interest, and then stop sucking after
getting used to it. But when the phoneme is changed to "pa", they begin to suck hard again. It is shown that the four-month babies have been able to discern the nuances of “ba” and “pa” [3]. Carey and Gelman's research showed that babies show early learning preferences for language, mathematics, causality, matter and biology.

Researchers in developmental psychology have demonstrated that babies not only have the ability to perceive, understand, and remember, but also understand language, stories, and personal intentions. The incredible abilities of infants and toddlers allow us to explore ways to develop early reading abilities in infants and toddlers.

III. THE CULTIVATION OF RECOGNITION IN PRELINGUISTIC STAGE

In order to explore a simple and effective way to develop the early recognition ability of infants and young children, we tested four groups of babies born in 1988, 1991, 1997 and 2012. At the same time, the infants who did not use the intervention method were selected as the reference, and the academic performance and work performance in the later stage were followed up. It is found that the children who have carried out early recognition training not only performed well in K12 stage, but also performed well in college and work, and maintained the habit of daily reading without exception.

The method of early recognition ability training includes four stages: the association of instruction and action, the cooperation of knowledge and language, the combination of literacy and meaning, and the guidance of reading and sentence breaking.

A. The Association between Instructions and Actions

We found that two-month-old babies laugh when the mother hold their little hands and make exaggerated movements with cheerful music. Therefore, when a baby is born, the training associated with the music and the action can be intervened, and then the association between the instruction and the action is started. This association focuses on how infants and young children act by listening to determine if they really understand the meaning of the language.

Because babies can use situations to judge the meaning expressed by different sentence structures and words, babies have a lot of learning opportunities in daily life. When the mothers touch babies’ body, they can clearly say the names of each part; when teaching them to do exercises, the mothers can also add movements, such as raising their hands, stretching their legs, etc.; when they are outdoors, telling them the names, shapes, colors, characteristics of everything by touching, and even use more abstract language to tell them how they feel about the temperature, how they feel about the things, and so on.

At this stage, it is important to gaze at each other with the baby. Chatting face to face with them and looking into their eyes, they will be attracted to our faces, especially for our mouth shape, and it seems that there is a certain correlation between the mouth shape and the sound. Babies are also actively trying to understand the meaning of the language spoken by the people around them at the stage when they cannot be expressed in words, and they will make effective guesses in specific situations. For example, the mother says “point to your nose”, the baby will observe the mother's expression and movement after executing the instruction to judge whether it is correct or not. If they can make a variety of actions according to instructions, then they understand the language spoken by adults.

Trained babies, without exception, can identify common nouns such as table, chair, flower, grass, etc., use gestures to understand common verbs and the differences between them, such as run, jump, climb, walk, etc., before the age of 12 months. They can also understand common adjectives, such as smooth, rough, hard, soft, etc., by touching. By observing facial expressions, they perceive emotional changes such as joy, anger, sadness, etc.

B. The Coordination between Recognition of Graph and Language

In 4-6 months, the babies begin to recognize people, which means that they can distinguish common faces from strangers. The experiment by P. Kuhl et al. showed that 6-month-old babies can distinguish the linguistic characteristics of the immediate environment. The study by J.Mehler and A.Christophe [4,5] strongly confirmed that children aged 8-10 months no longer think of spoken language as consisting of sound and begin to characterize the content related to language. We presented 100 pieces of world famous paintings for 9-10 month old babies, and found that their attention to 50 brightly colored paintings is significantly longer than that of making old Chinese ink painting. Therefore, 50 oil paintings were used as the main display tools of the art symbol system, which were displayed to the babies twice a day in the morning and evening, and the names of the oil paintings were clearly informed at the same time. After 1-2 months, the 50 paintings were randomly divided into 10 batches. Each time, five pictures were placed in front of the babies. When the name of each painting was given and the children were asked to pick out the right one, 42% of the babies were able to find all the specific paintings 100%. For this part of the baby, we made it more difficult to classify the pictures by content, for example, putting similar portraits in the same batch, and putting similar landscape paintings in the same batch, and then we let the baby identify them, and 30% of babies still maintain a 100% precision.

C. Combination of Literacy and Meaning

As mentioned above, babies can organically combine the recognition of graphic with language at about 11 months old. They have the ability to distinguish the nuances of complex graphics, and they have the conditions for literacy. We prepare teaching aids that combine characters and pictures and guide infants and young children to observe outdoors objects as much as possible, in order to connect characters with practical meanings. For example, when you teach them to know "dogs," and show them pictures, and you’d better taking them to observe different kinds of dogs, and explaining when they have doubts, such as dogs and dogs look different, but they are all dogs. Just like you and me, although we look different, we are all people (humankind).
Our training of character recognition for babies is the same as the oil painting training mentioned above. Each batch display can be up to 50, not only single characters, but also phrases and sentences. About 11-12 months old, they can accurately find the specified one from 100 cards, and enjoy it. At present, we do not know whether the babies remember the whole text as a picture, or remember the text itself. It is also difficult to tell how "refrigerators" and "televisions" are accurately distinguished in their brains, but babies are more likely to recognize characters as pictures. Because even children who have had early-stage training, in the first grade of primary school, it is difficult to distinguish the difference between highly similar characters such as “洒” and “酒”.

In this way, babies will notice the characters appearing in life earlier, such as store names, billboards, bus stops, elevator notices, and so on, and will insist on identifying new characters. Although they cannot be expressed in language, they will not stop until adults say languages that satisfy them.

D. Guidance for Reading and Sentence Breaking

By using the above method, children aged about 30 months can read picture books on their own. One of the young girls, Zinnie, she can not talk until 26 months, but she could speak a coherent written language and read the Emily series for her mother when she could speak. We counted her literacy, about 2000 words. This amount of literacy enabled her to read almost all the picture books smoothly. However, long sentences need to be guided by sentence breaking, explained and applied in life, and gradually reach the understanding of the contents of long sentences. Zinnie is now in the first grade. She did not learn Chinese Pinyin before school, her ability to learn Pinyin has surprised her Chinese teacher. Therefore, we note that the children with reading training can perform better when they learn that there is no preset phonetic situation, so we extend this method to the cultivation of non-native language reading ability.

Because of the recognition of native words, their observation, concentration and pronunciation are more accurate than those of ordinary children. Therefore, when we use the same method to train young children who are already able to read their mother tongue to read, they can immediately understand the corresponding relationship between the meaning expressed in non-native words and the picture. It shows the sensitivity to the sense of writing, realizes the better expression and meaning, and obtains the more pleasant literary aesthetic feeling.

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