

Is Language Development in Young Children Independent of or Dependent on Cognitive Development Generally

Hsueh Yun Huang

Whether Children's language development is generally independent of or dependent on cognitive development is a most interesting topic, not only for those interested in psychologists and linguists but also for ordinary people. Different schools of psychologists and linguists have studied the question and produced their theories or hypotheses. Generally their viewpoints can be classified into two: mentalism and behaviorism. The mentalists believe that young children's language development occur via the processes involved in the development of children's thought, perception, comprehension, memory and learning, while the behaviourists hold that language development occur through physical processes. They explain how an external event (a stimulus) causes a change in the behaviour of an individual (a response) without using concepts like "mind" or "ideas", or any kind of mental behavior.

According to the linguists' phonological approach, around six months old the baby has reached the babbling stage. He has begun to experiment with his mouth and tongue. Around one year old, he can utter consonants and vowels together. They are vowel sounds [] [a], consonants [p] [b] nasal sounds [m]. These sounds are combined to form other sounds like [mama] [papa] or [didi], for in-

stance, while he is being fed and held by his mother. He has often been heard "call mama" "call didi or papa". With his mother's encouragement and with his innate power to imitate so he can pronounce [mama] or [didi]. However he will not be able to understand its semantic meaning until a later stage.

Then he moves through two word stage. Adults teach him to say "little dog" and he can copy it. Around two years old, a child can speak a two-word phrase. Martin Brain (1963) noted that the combinations did not seem to be random. He observed that certain words always occurred in a fixed place, and other words never occurred alone. Psycholinguists distinguish these words as pivot words and open words. For example, pivot words are "more", "pretty", "want", "my", open words are "milk", "shoe", "toy" Lois bloom (1970) also discovered that at this stage the child can utter many phrases. Their structure may be as n+n, adj+n, possessive+n, subject+object eg mummy ball, subject+location such as [mummy home].

By two years old, young children have acquired some syntax. Gradually morphological endings, articles and prepositions appear in their utterances eg "He goed there yesterday". It was found that the Harvard child Adam, and another child, Barbara between the ages of 2 and 3 1/2, acquired the following gram-

matical forms: (Brown 1973 p.271)

Age 2	progressive-ing	I singing
	plural-s	Blue shoes
	copula am, is, are	He is asleep
	article a, the	He is a doctor
Age 3	3rd person singular-s	He wants an apple
	past tense-D	I heoped mummy
	full progressive am, is, are+ing	I am singing
	shortened copula	He's a doctor
	shortened progressive	I'm singing

Most three year old children can correct ungrammatical sentences themselves and can also produce complex sentences. Around four years old, they have almost acquired the knowledge of phonology and syntax an adult has. At the age of five or six, they acquire a system of syntax.

From the behaviorists point of view, children's language development occurs by imitation of adults speaking i.e. the child's language learning process consists essentially of mimicking what the adult says. While mimicking, the child gets both positive and negative reinforcement which accelerates his language development. Through imitation and trial and error, children gradually accumulate experience and a collection of habits, which leads to generalize language competence.

According to Chomsky's hypothesis, language acquisition occurs because of an innate capacity for language learning, ie language development is a genetically transmitted capacity which is distinct from, but operates in collaboration with other mental faculties. Chomsky explains how children's unique linguistic knowl-

edge is embodied in a faculty, LAD (a mechanism called the Language Acquisition Device). The ultimate product of LAD is an internalized system of rules which characterize the structure of a language, and which underlie both comprehension and production.

Piaget holds that a young child's language development is related to his thought processes. Moreover, he thinks that language development will be constrained by cognitive development in those aspects of language where the child is able to differentiate between action and object or self and others. Gradually, through the processes of assimilation and accomodation, the sensorimotor child separates the psychological categories of agent, action and object, verb phrase and noun phrase. From the above, Piaget maintains that a stage in the child's cognitive achievement has been reached before the child begin to produce speech, recognisable as being attempts at their mother tongue.

We have seen in the previous paragraphs that Piaget's hypothesis is like Chomsky's, and unlike that of the behaviourists. But he does not agree with Chomsky that childrens language development depends on their language-specific features. So Piaget and Chomsky have debated whether or not language acquisition depends upon certain cognitive prerequisites. Piaget argued that the child's utterances have proved such as a dependence. However Chomsky doubted this and insisted on his hypothesis that mechanism-LAD was necessary for the job of language acquisiton. Chomsky argued for the existence of several innate mechanisms, one specialized for surface recognition, the other for language acquisition. Piaget, on the other hand, insisted on the construction of multi-purpose cognitive structures. (British Journal of Psychology 1982)

From P.L Harris's studies of the children's utterances and of the relationship between what the child understands and what he says, he indicates the child's cognitive structures are generally in advance of his linguistic structures. For example, at the one-word stage, an utterance such as "up" addressed to the mother implies both agent and action, and a two-word utterance such as "Mummy pigtail" implies agent (mummy) action (make) indirect object (me) and direct object (pigtail). Moreover, by looking at children's grammar and comparing it with what children thought they were saying, Pinker (1979) found that young child's cognitive development has little influence on his language development. However John Lyons (1981) maintained that children's learning abilities were independent of their language development since it is acquired under pressure of the need to relate to the people around him and the need to communicate his developing perception and understanding of the world in which he is growing up. In other words, a child needs a rich language environment in which he can develop his language as fast as possible and master as many rules and patterns as his memory span and cognitive ability allow. Anything he is not yet ready for, he simply ignores.

In J. Aitchison's *The Articulate Mammal* she introduces some linguists' process approach to explain how children acquire language. She questions whether the children's language development dependent on general mental development, or on general cognitive development. She suggests that the answer is both. Fodor, Bever and Garrett (Fodor, Bever and Garrett 1974 p.463) also indicate that certain cognitive abilities and language structures tend to emerge simultaneously. For example, the child

says, "I am bigger than you" at a time when he can recognize that a pint of milk remains the same whether it is poured into a long thin container or short fat one. But Susan Curtiss of the university of California has found clear evidence that children's general cognitive development is unrelated to their grasp of language structure. (Curtiss 1981)

Curtiss provided Marta and Genie's cases. Marta, a 16-year-severely retarded adolescent was unable to perform tasks of a normal 2-year-old children. Her speech was fluent, abundant and richly structured. For instance she says "She does painting, this really good friend of the kinds who I went to school with last year and really loved". But her utterances were often semantically odd or inappropriate. In contrast, Genie, a 14-year-old California girl who has been isolated without a language environment, was able to cope with complex concepts, but her language ability was minimal. The case studies suggest that cognitive development can not provide the definitive key to acquisition of language. Moreover, in Taiwan Genie's case has been echoed. Hsia Lung, a six-year-old boy, was found at six. He had no brain problem and could perform tasks well. He expressed himself mainly by his body language. Since he was found he has been staying with a psycholinguist's family and learning to speak both in the family and kindergarten for one year. He progresses more slowly than normal children.

There is therefore a variety of psychological and linguistic evidence. Young children's language development may be either dependent on or independent of their general cognitive development. There is still a great deal of debate among linguists and psychologists and it is hard to come to a conclusion. Let us look

at what V. J. Cook (1979) sequently observed and recorded about how his son Robert developed his language from his baby stages to the age of five:

Before Robert started using words, he smiles at his mother. Then he made a gurgling noise as his mother sound something to him. Soon Robert learned to anticipate the adult's appearance by adult's sound, and he himself started to use sounds as part of these routines. However the sounds Robert produced were very different from the language an adult would use. After using the sounds, he added the use of gestures as well. This was to tell adult things. eg he pointed at place; he reached for things.

From Robert's smiles, gurgling, sounds and gestures, we can echo Piaget's hypothesis--he thinks that a young child's cognitive development is before his language development. Another point is that although Robert learns to anticipate the adult's appearance by adult's sound, his sounds are very different from the adult's. This contradicts the mentalist's point of view that child's language development is from mimicking. Because, if he were imitating the adult's sound, he would produce the same sounds as the adult's. Furthermore the observation of Robert seems to give a hint that the young child has an innate language faculty, as Chomsky has hypothesised.

After this stage, Robert learned to get what he wanted through words "bubbles" --got him a bath, "chip"--got him food. "more"--got more things or action he liked. At this stage he also learned to call "mummy" and "Daddy", and name food such as "milk" and "nana" and "bisk", animal such as "moo", clothes such as "shoe-shoe", toys such as "dolly". However, at this stage he did not always look at things and

correctly say their names. Cook and his wife also always provided Robert with the language to name the object at this stage, but they found that Robert used words which they did not use. eg when Robert saw a duck, he said "quack-quack".

This provides some evidence that J. Atchison is quite right. She holds that child language development depends on both the general mental and cognitive development. It also supports the mentalist's imitation theory and Chomsky's innateness. However, sometimes Robert did not mean what he actually said. This point seems disprove Slobin's (1973) theory that child language growth is consonant with the child's cognitive growth.

After the name object stage, Robert can associate the objects. He started to express things about what he saw. He was particularly interested in actions and people or objects. eg "go" "gone" ---something drop; mother left. Robert lost interest of something hidden from him and he did not bother to look for it. So if Robert asks for "cake" this showed that he was aware that cake existed.

From the stage when Robert could not relate to what he actually said to the object to the point when he could do so. We can see that language for social relationship grows out of routines, which the child used before he can talk, but this ability also depend on some of the ways that he has learned to think. Obviously this development is hard to separate from other aspects of child's development. eg physical development. The child needs to be able to control his breathing, his mouth, his tongue and other muscles quite precisely before he can produce the sounds of speech. This is the reason with which G Sampson (1975 p129) supported his arguemnt--The de-

velopment of language is in some sense like growth of teeth. Lennebergs (1967) also thinks that child language requires some biological trigger. This stage child's language development also needs his mental development as well. Because the ways of thinking are reflected in humanbeing's speech.

After Robert's two word stage; "daddy sleep" "allgone milk" he moved to the telegraphic speech stage; eg "help jelly" "mummy crying" "mummy nose". After this telegraphic stage he extended to three or four words until he could make sentence such as "I'm climbing up." Step by step the child added more of these words and word ending to his speech. eg: "Give mummy the fork." "Where Nicola ?""Where is it ?"(Cook 1979 P21)

As above mentioned, child language development is not combining words at random. In fact the child does seem to be aware of word order. eg He says "more milk" not "milk more". This evidence that the child has the autonomy of his language and number of linguistics' general rules. Meanwhile this evidence proves Chomsky's hypothesis that child has an innate property-the general linguistic faculty. This not only shows the young child has an understanding of basic grammatical relations, but also his word combinations are based primarily on semantic considerations. This telegraphic speech implies that the young child has his own syntactic system. It implies that child language development is not exactly like psychologist's imitation theory, which states child language acquires form mimicing his parents. Therefore we know child's language is not like an adult's. If the child did absorb and copy the speech of adult's, his speech would be like an adult. However, this is not true of a child's speech.

During Robert's two words--wh--question stages, he gradually liked to play with other children. The play-group situation gave Robert contact with a wider range of people, not just his own family but with children of his own age and less familiar adults. Cook says at 2 1/2 Robert spent as much time in a play group or nursery talking to adults as he spent talking to children. Much of the time he was calling directly for the adults' attention-- "look at me" "Christopher won't slide". At five he was talking to other children at least twice as much as he talked to adults. Although in the early stage when children play together they do not so much talk to each other and as if they have separate monologues.

This seems to support John Lyon's point of view that children language depends on a rich language environment and his experience. At this point, D. Steinberg argues with N. Chomsky's "Faculties of the mind and LAD" -- which is Chomsky's belief that such faculties of the mind are relatively independent of one another. He believes that innate knowledge alone is sufficient for acquisition of language and that mathematical or logical knowledge is not needed. In other words, N. Chomsky asserts that language development is independent of a general cognitive development. But Steinburg holds that language development needs certain experiences stemming from interaction with the world. The innate ability is not functional or operational and it gives rise to the knowledge of language.

However, from a consideration of Robert's play-group, we see children have their own ways developing their language. Their own ways of developing language depend on Chomsky's innate language faculty and Steinburg's experience of interaction with other people as

well. Actually, as we see from Robert's play-group, he depends on what he has experienced for developing his language. He also needs to be able to perceiving what is going on around him. According to Cooker's writing Robert makes a slow progress from one word to two words to longer sentences. The reason for this may be that a young child language also depends on his memory expanding. However we should not say that this is like Lennberg's critical period to wait a biological trigger.

From the above psychologists and linguist's theories, hypotheses, their observation and experiments, we see that language is not separate from but depends upon many aspects of the child's development. In my own point of view, the young child's language development is also dependent on his inherent intelligence, so he needs analogous, analytic, systhetic and deductive abilities before he can fully develop linguistic skills. Of course, he also needs a powerful memory which he uses to store his parental speech and what he hears around him. Furthermore he uses his analysis, synthesis, deduction and analogy to extract linguistic regularities from the data he hears around him and build up his grammatical system. So I would like to say that language development in young children seems to be indepent of, yet dependent on general cognitive development.

Bibliography:

- Aitchison, J. (1984) *THE ARTICULATE MAMMAL* : An introduction to psycholinguistics. Essex: Hutchinson & Co, Ltd.
- Braine, M.D.S. (1963) "The ontogeny of English phrase structure+ The frist phrase", *LANGUAGE* p.1-14.
- Allen J.P.B. and S. Pitcorder (1975 ed.) V 2 : Paper in Applied Linguistics, London W.I. : Oxford University press. p.220-32, 311-15.
- Bloom, L. (1970) *Language Development: Form and Function in Emerging grammars*, Cambridge, Mass: MIT Press.
- Brown, R. (1973) *A first language*, London: Allena and Unwin.
- Cook, V.J. (1979) *Young children and language*, London; Edward Arnold Ltd. p.1-46.
- Curtiss, S. (1981) "Dissociations between language and cognition: cares and implications", *Journal of Autism and Developmental Disorders*, p.15-30.
- Dale, P.S. (1976) *Language development; Structure and function*, (2nd ed), New York; Holt, Rinehart and Winston. P.38, 63-68, 77-78, 105-6, 128, 171, 219, 227-33.
- Elliot, A.J. (1981) *Child Language*, Cambridge University Press. Charpter 3.
- Harris, P.L. "Cognitive prerequisites to language" p.31-9 in *British Journal of Psychology* (1982) 73. 187-195. Printed in Great Britian.
- Sampson, G. (1975), *The Form of Language*, London: Weidenfeld and Nicolson p.129.
- Slobin (1973) "Cognitive prerequisites for the development of Grammar's in Ferguson and Slobin (1973).
- Steinberg D. (1982) *Psycholinguistics -- Language, Mind and World*, London & New York; Longman p.85-101, p.142-64.
- Simelar-deZwart "Language Acquisition and Cognitive Development" in *cognitive Development and the Acquisition of language* ed by Timothy E. Moore Academic Press New York and London 1973.