Language acquisition:
theories on how children acquire their native language

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ABSTRACT

Acquiring a language involves extremely complex tasks such as learning intricate sound systems and mastering elaborate grammatical structures. Yet in the first few years of child's life he/she masters the foundation of their native language without specific language learning instructions, and within five or six more years, they become fluent speakers of the language.

Over the past few decades, extensive research has been carried out to try to explain how children develop their language. Substantial progress was made to find out the answers to these questions. However, there are still many uncertainties that remain.

In this paper, the major approaches to language acquisition will be outlined and some key aspects of language development will be discussed.

1. Introduction

Children's acquisition of their native language starts from very simple structures and it gradually progresses to speech that is more complex. For instance, every child, irrespective of what their native language is, develops their language structure from *holophrastic sentence. Holophrastic sentence* is where children utter only one word. Children steadily increase the lexical numbers and develop more complex sentences structure (i.e. *two-words sentence* or *telegraphic sentence* stages), and this process never retrogresses. Prior to the actual acquisition of any sounds children seem as if they are

making an effort to figure out their surrounding environment in a holistic manner, such as by sorting out who the people around them are, how those people interact with each other, their tone or pitch of voice, contexts where conversations take place, etc.

Although a number of researchers, for many years, attempted to resolve the mystery of how children learn language, it has remained enigmatic in some aspects and there is no single approach which can provide us with a complete account of child language acquisition.
There are, however, several explanations of how children acquire language. These approaches stand somewhere on a continuum where extremes are marked by the *behavioristic* viewpoint at one end, and the *generative* viewpoint at the other end.

The amalgamation of different approaches in the continuum, that complement deficient elucidations in one approach, have become more prevalent as it was impossible for a single approach to provide a complete explanation for such an abstruse task.

In this paper three major approaches, namely *behavioristic approach, nativist approach*, and *functional approach*, which endeavor to answer the mystery of language acquisition, will be described. Salient developmental stages of children's language in the area of phonology, grammar, lexicon and semantics will be discussed in the latter part of the paper.

2. Approaches on Language Learning

2.1. *Behavioristic Approach*

We can say that approaches to children's language acquisition lie on a

continuum. The *behavioristic approach*, where researchers advocate that a child's environment is the most crucial factor in relation to their language acquisition, seems to be located at one end of this continuum.
Proponents of this approach regard that children are born as *tabla rasa*, a state of no preconceived ideas towards the world they come into. They believe that children develop their language through various forms of reinforcement after birth.

This approach proposed that a child acquires language when they are positively reinforced by uttering correct words, correct phrases, or correct sentences, and negatively reinforced, on the other hand, when their utterances are incorrect. That is to say when a specific response is rewarded, then it will become habitual for the child. Those habits, a set of linguistic behavior, are conditioned by continuous reinforcement, which is often made by their carers immediately following their utterances. This process develops the child's native language.

The *behavioristic approach* in linguistic behavior is exemplified in Skinner's Verbal Behavior (1957). Skinner was well known for his expertise in animal behavior; however, he became highly credited for his work in the areas of education, teaching machines and programmed learning.
According to his theory, language learning is operated by its consequences. If the consequences are rewarding, the behavior forms a routine and becomes strong habit. Thus learning is facilitated. On the other hand, if the consequence follows some form of punishment, the behavior will fail to develop into a habit and it will eventually vanish. In this theory, conditioning and reinforcement are the key elements of language acquisition.
Today not many researchers, psychologists or psycholinguists are fully convinced by Skinner's theory for the acquisition by children of their native

language since language acquisition is highly abstract in nature and their meaning. In fact, language acquisition cannot be a set of habit since speakers create virtually all phrases and sentences spontaneously during verbal interchange with their hearer, and many of these utterances have never been stated.

The mediation theory was proposed by some psychologists to support and modify the *behavioristic approach*. It was founded on Pavlov's contiguity theory and attempted to connect language acquisition with *stimulus – response* behavior.

Another *behavioristic approach* emerged in mid to late sixty's. Jenkins and Palermo (1964) attempted to synthesize the notion of generative linguists and mediational approaches to explain child language acquisition. They claimed that a child may acquire frames of a phrase-structure grammar, and learn the stimulus-response equivalences that can be substituted within each frame; imitation was an important, if not essential, aspect of establishing the stimulus-response association (Brown: 1987).

Although, environment and reinforcement certainly seem to play a critical role for a child's language acquisition in some aspects, the *behavioristic approach* fails to account for the nature of a child's language acquisition since this approach is unable to adequately explain how a child creates phrases and sentences which they have never encountered. The failure or shortcomings of *behavioristic approach* induced the development of other approaches to explain the language learning process.

2.2. *Nativist Approach*

At the other end of the continuum sits the *nativist approach* which claims that children are born with not only an innate ability to generate language but also with knowledge of the nature of the world they are born into. This approach supports the idea that children have an embodied language acquisition device (LAD) (Chomsky: 1965). The presence of LAD explains the fact that a child masters its native language, which has highly abstract rules, in a rather short period. Chomsky argued that children are biologically pre-programmed to learn language so that children all across from diverse language background learn their native language in a very similar way at around the same age.

> *It seems plain that language acquisition based on the child's discovery of what from a formal view is deep and abstract theory – a generative grammar of his language..... A consideration of the character of the grammar that is acquired, the degenerative quality and narrowly limited extent of the available date, the striking uniformity of the resulting grammars, and their independence of intelligence, motivation, and emotional state, over wide rages of variation, leave little hope that much of the structure of the language can be learned by an organism initially uninformed as to its general character..... It may well be that the general features of language structure reflect, not so much the course of one's experience, but rather the general character of one's capacity to acquire knowledge.* (Chomsky 1965)

The idea of the innate ability of children had a massive impact on research in this field in the 1960's. McNeill who was one of the researchers who

supported Chomsky's view described LAD as consisting of four innate linguistic properties. These are: (1) the ability to distinguish speech sounds from other sounds in the environment; (2) the ability to organize linguistic events into various classes which can later be refined; (3) knowledge that only a certain kind of linguistic system is possible and that other kinds are not, and (4) the ability to engage in constant evaluation of the developing linguistic system so as to construct the simplest possible system out of the linguistic data that are encountered (Brown: 1987).

Researchers, who were convinced that children had a pre-programmed ability to learn language, carried out numerous investigations to uncover the linguistic rules acquired by children.

However, the LAD proposition still had its limitations and began to be criticized, as LAD was something that was abstract and could only explain superficial language acquisition.

Nevertheless, the *nativist approach* had significant contribution as it shone a light on the systems of language acquisition by children.

One of the great steps made by these linguists to understand the language learning is the process of children learning grammatical rules for their language. They observed children's two-words utterances always consisted of two different classes. Following are typical "two-words sentences" often articulated by children in the early stage of language development.

That dog
My cap
Allgone milk
Mommy sock (Brown:1987)

The first words (i.e. *That, My, Allgone,*) seem to form a class and are located at the preceding position, whereas generally the second words do not. For example, *That* can take *dog, cap, milk*, and *sock* but cannot take *My, Allgone* (*Mommy* in this case belongs to both classes). Those preceding

words are called *pivot words*. The second words, on the other hand, are called *open words*. Linguists named this grammatical development of early childhood as 'pivot grammar'. Researchers saw a number of rules, and assembled them together. However, those *nativist* viewpoints began to receive increasing criticism by researchers who proposed a *functional approach* to language acquisition.

2.3. *Functional Approaches*

In the process of language learning, a passive and submissive role seemed to be given to the children by both the *behaviorist's* and *nativist's* explanations, such as reinforcement from their environment, or a pre-programmed ability for language learning.

Research into language acquisition began toward the recognition that language learning involves much more than the positive stimulus-response to children, or the acquisition of a systematic understanding of grammatical rules.

Although they were highly abstract, unambiguous and took up forms of language adequately and logically, *generative rules* proposed by *nativists* were considered to ignore the deeper levels of language, which include human memory, perception, thought or meaning and so on. Linguists began to see that language was the manifestation of general development, one aspect of the cognitive and affective ability to deal with the world and with self (Brown 1987). *Generative rules*, describing theories of grammatical development of child language acquisition, therefore, were failing to capture the phases of meaning and function of language.

That is to say, the *nativist approach* did not adequately realize the importance of the development of children's cognitive phase in terms of

language learning.

Pivot grammar, advocated by *nativists*, was also criticized by those researchers who took up the *functional approach*.

Lois Bloom (1971) pointed out that both *pivot words* and *open words* used at the *telegraphic sentence* stage contain several different meanings depending on the context. She manifested that children learn deeper structures of the language at their *telegraphic sentence* stage. Bloom confronted the *nativist's* viewpoint which emphasized on the development of grammatical rules only. She used the example of '*Mommy sock*', and analyzed this sentence in terms of meanings. She proposed that there are at least three different meanings in this *telegraphic sentence*. We will look at the issues relating to the meaning at section 3.4. of this paper.

Bloom, Jean Piaget and other researchers focused on children's cognitive prerequisites of linguistic behavior. They highlighted the dynamic role of the child, which derived from children's instinctive need to figure out their environment as well as to communicate with others from the very moment they were born. This view does not exclude the environmental factor and the children's pre-programmed ability. However, according to this theory, children are regarded as extremely active individuals holding their inner motive to interact with the whole environment where they are. Piaget concluded that children's linguistic development is closely related to their perceptual cognitive development. Bloom (1978) described this movement as follows:

> *There have been two main thrusts in attempting to explain how children learn to talk. On the one hand, it was proposed that the course of language development depends directly on the nature of the linguistic system and, more specifically, on the nature of those*

> *aspects of language that might be universal and represented in an innate, predetermined program for language learning. On the other hand, evidence began to accrue to support a different hypothesis which emphasized the interaction of the child's perceptual and cognitive development with linguistic and non-linguistic events in their environment.*

The relationships between the form and function of language received attention by these researchers. Since language develops in a meaningful context within interactions and communication, linguists see that the development of communicative functions might be another key element to focus on children's first language acquisition.

3. Salient Stages in Language Acquisition

Children nurture the ability to comprehend the complexities of grammar and create sounds (i.e. word/s or a sentence), which represent their thoughts, in a relatively short period after they were born. Similar developmental stages can be seen in the area of sound, grammar, words, and meaning across diverse peoples and languages.

We shall now look at general patterns at certain stages of language development, yet children may reach certain stages of their language development at a different pace.

3.1. Phonological Development

3.1.1. Phonological Development in Children

Newborn babies show a number of signs that suggest they are pre-programmed to learn speech. Observations of newborns reveal that they

respond more to human speech sounds than to other noises (Condon and Sander: 1974). As early as the first twenty-four hours after birth newborns respond to the sound of a human voice by moving various parts of their body. Hayashi (1999) found out that newborns indicate three stages in relation to their preferred voice. According to Hayashi, in the very early stages of life newborns prefer to listen to the sound of other newborn's voices rather than to an adult's voice. This preference disappears at the next stage. When newborns reach around ten to twelve months of age, they show more interest in listening to the voices of adults. This period coincides with the time when children start to be capable of understanding adults' voice as information.

Polka et al (1994) found that the first ten months after birth is a crucial period in children's phonological recognition development. Up to around six months of age, children are capable of distinguishing all phonological features in speech regardless of the language. However, when they are around ten months of age, children lose the ability to distinguish sounds that do not exist in their native language. This decline in the ability to distinguish sounds does not have any affect on them acquiring their native language. In fact, this phenomenon is regarded as facilitating language acquisition by way of excluding sounds that do not exist in the child's native language (Hayahi: 1999). This change also promotes children's assimilation to their native language. Tsushima et al (1996) found that in the process of language acquisition Japanese babies lose their ability to differentiate /r/ and /l/ sounds at ten months of age.

Researchers have shed light on children's verbal behavior especially before they reach twelve months of age. It is found that verbal behavior at this very early stage of their life is closely related to their linguistic

developmental process. This process can be seen in all the children regardless of their native language.

Starting at the non-linguistic stage, which includes sputtering and cooing, children gradually enlarge their repertoire of speech sounds as their speech organs mature. Bubbling sounds are very similar to all children; however, these sounds will be differentiated as a result of exposure to their native language. In other words, speech sound produced by children are steadily influenced by the specific language which they are exposed to. Stark's (1980) study on children's phonological development is widely recognized.

The first stage of children's sound production consists of sputtering, burping or crying. These sounds can be heard up to six weeks after birth. The second stage appears when they are between six to sixteen weeks old. In this period children smile and make cooing and laughing sounds.

In the third stage, when children are around sixteen to thirty weeks old, they also produce sounds by squealing and yelling. Also, they make noise by blowing air.

The fourth stage, which is six to ten months old, is defined as "reduplicated babbling" (Arnberg:1987). Consonant-vowel sequence repetition can be heard in the child's babbling during this stage. The striking difference of the sound feature at this stage from the former stages is that children start to produce similar sounds to their native language. This is noticeable in the area of prosody, where pitch and rhythm play a vital role.

This phenomenon is significant in two aspects. First, there is a possibility that prosody contains more factors which facilitate children acquiring language than other linguistic phenomena. For instance, Allen (1975) and Bolinger (1983) pointed out that prosody is closely related to the movement of muscle. Another aspect is that prosody may organize the essential

matrix of subsequent language acquisition (Kohno: 1986). It is generally recognized that the unit of rhythm and intonation coincide with the unit of grammatical meaning such as phrases and clauses (Crystal 1975).

At around ten to fourteen months of age, which is the children's fifth stage of phonological development, sounds become more complex and a variety of sound combinations are articulated. The sound combinations can be: single vowel, diphthong, vowel-consonant sequence, consonant-vowel-consonant sequences as well as the forms of sound that children produced at any of the earlier developmental stages. Stress and intonation patterns become much more noticeable than compared with at earlier developmental stages.

At stage six, usually ten to twelve months of age, systematic sound, which has a similar sound to existing words, can be heard. This is known as the *holophrastic sentence* stage. At this stage children produce a word or similar sound to a word. A word in a *holophrastic sentence* does not refer to the usual referent but rather contains a wider semantic range. It should be noted that now it is widely recognized that there is considerable correspondence between children's babbling sounds and the early production of their words (Vihman: 1996).

3.1.2. Subsequent

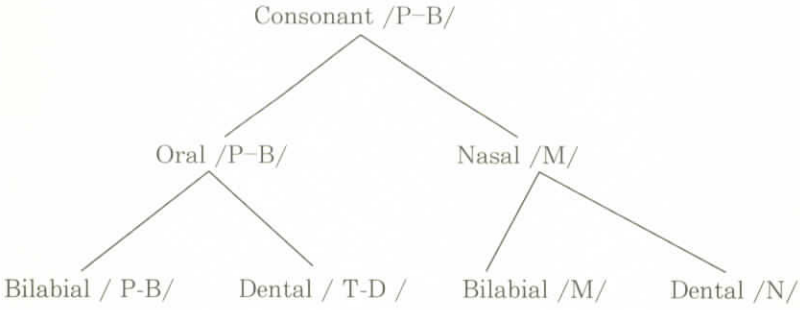
At around twelve months of age, children start to recognize certain sound contrasts such as vowels and consonants, and they become consciously to try to extract these sound contrasts. This is the beginning of their analytical work to sort out the phonological rules of their language.
Jacobson (1968) was an eminent researcher who proposed a theory of systematic phonological development which pointed out the progress of

children's ability to contrast certain sounds.

This theory notes the sequence of sound development as well as clarifying children's sound substitutions. In this theory, all the languages, which involve verbal interchange, have sound contrast. Human language is produced and comprehended by differentiating between these sound contrasts. Some sounds provide significant contrasts while some other contrasts are only very slight.

Those sounds which have great contrasts are more easily recognized by children and are produced at an earlier stage than those which have slight contrasts. As children mature their sound perception to realize the sound contrasts, their ability to perceive subtle contrasts increases.

The major contrasts that exist are between vowel and consonant sounds. Children seem to be able to contrast "a" and "p" or "b" sound first (Arnberg: 1987). The contrast of oral and nasal consonants is recognized at the next developmental stage. Children at this stage are able to create bilabial sounds with vowel sounds. The following contrasts are sounds produced by bilabials and those made by dentals (see **Figure 1**).



(Figure 1)

Clark & Clark (1977)

Jacobson's theory widely was supported, however, there are some points which weaken this theory. One is that it seems that the way children develop their sound system is by simply articulating what they hear. Another point of criticism of the theory is that there is considerable variation in terms of sound development among children although there is a general tendency that children acquire front vowels at an earlier stage than back vowel sounds, and plosive sounds are acquired earlier than fricative sounds (Arnberg: 1987). Children require more time to acquire for the clusters of consonants such as str*ength*, twe*lfths* (Kohno:1986). Again, there are some differences in the order of sound development among children

3.2. Grammatical Development

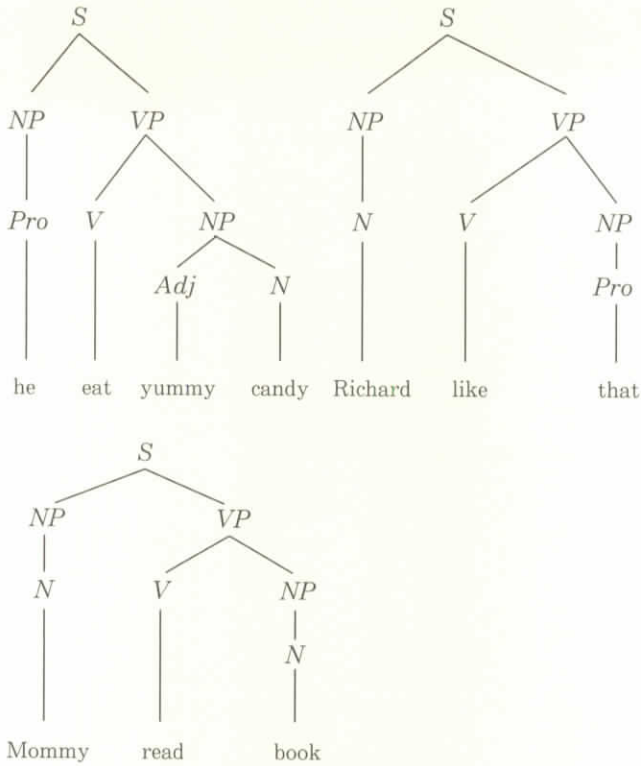
Children develop significant knowledge of the grammatical system of their native language before they reach the age of six.
Their first stage, the *holophrastic sentence*, normally appears at the age of nine to twelve months. Typical *holophrastic sentences*, by children of English speaking background, are often sounds like, "dada", "there", "ta", "no", "more", "gone". Yet, we cannot distinguish whether those "one-word" articulations are meant to be the subject or the predicate of the sentence. Furthermore, it is not possible to determine which word classes the words in a *holophrasic sentence* may belong to.

The second stage of grammatical development, which involves the combination of two words, appears approximately at the age of eighteen months to two years. Initially at this "two-words sentence" stage, which is also called *holographic utterance*, children articulate each word with its own pitch. After this early stage, children start to create genuine "two-words

sentences" with clear syntactic and semantic relations. Words are often articulated as a whole rather than placing a pause between individual words. During this stage, no morphological markers are inserted such as various inflections for numbers, tense and so on. While syntactic and semantic relations can be observed, the functions (i.e. a subject, a predicate, and an object of the sentence) of each word are still unspecified. Assuming that child acquired the following words: "daddy", "kick", "ball" and "window". When they see a situation where their father kicks the ball out through an open window, they are likely to produce "two-words sentences" to describe they have seen, for example, "daddy kick", "daddy ball", "ball window", "window daddy" and so on.

At the end of this stage notable progress can be seen in stabilization of word order, acknowledging the 'actor – action' relationship is found. Some morphological modifications also emerge at this stage.

Children reach the third stage of grammatical development, *telegraphic sentence* stage, at the age of two years to two years and six months. At this stage, children are capable of creating a sentence which involves three words or more. The *telegraphic sentence* stage is so named because children's utterances sound like they are reading telegraphic message. The main characteristic of this stage is that children omit function words such as particles, prepositions, auxiliary verbs and so forth. They only utter content words: words which deliver the major messages as to the content of their thoughts. However, word order stabilizes much more than at the previous stage. Some examples of typical *telegraphic sentences* would be; "where man gone", "what that?", "no sit there" and so on. While function words and grammatical morphemes are still yet to appear, a constituent structure develops similar to that of adult speech (see **Figure 2**).



(Figure 2)

At the fourth stage of grammatical development, from about two-and-half years old to three years old, children are able to produce varieties of simple sentences such as declarative sentences, interrogative sentences, imperative sentences, and also sentences with an intransitive/transitive verbs. Remarkable vocabulary expansion contributes to the ability to create these diverse sentences. It is especially notable that the structure of a noun phrase placed at the end of a sentence develops into a much more complicated form (eg. "a man with a hat on"). Children at this stage also

manipulate coordinate conjunctions, such as in a phrase like 'boys and girls'. It is clear that children at this stage have started to acquire fundamental grammatical rules, yet there are great discrepancies in the detail between the speech of adults and those of children.

When children become three years to three-and-half years old, they reach the fifth stage of their grammatical development. At this stage, children are able to generate compound sentences while utilizing coordinate conjunctions as clauses of the sentence (eg. "Daddy gone in the yard and he felled over – and – and – hurt his knee – and...."). Complex sentences (eg. "He said he did it"), and comparative sentences are also heard at this stage. Children become competent at creating much more complex structures of phrases (eg. "This is *the house I build yesterday*").

The sixth stage comes when the child is at approximately three-and-half to four-and-half years of age. While they have not acquired the use of auxiliary verbs and pronouns, they are capable of constructing longer and diverse sentences exercising their own creativity. Children have difficulty with understanding sentences in passive voice as well as with using words like "all" or "both". It is expected that they acquire those skills fully at around the age of nine to ten years.

Children make dramatic progression by the age of four to five years in relation to the complexity of their speech. As they improve their competence in putting their thoughts into language, their speech will sound similar to that of adult utterances. However, it is clear that children take approximately twelve years to acquire intricate grammatical rules and are able to manipulate the language. Many more years are required to use the higher level of syntactic patterns used in the language.

3.3. Lexical Development

In addition to learning phonological and grammatical patterns of the language, lexical development is another crucial task for children to learn. In other words, children must learn a number of words to express their thoughts as well as external objects, events, activities and so on.
By the age of six to seven years old, children enlarge their lexical capacity dramatically. Approximately at two years of age, children have around three hundred words which they are able to use in appropriate situations, and comprehend them when they hear them. They normally expand their vocabulary to almost one thousand words at the age of three. From three years of age, it is believed that children continuously add around fifty words to their lexical storage every month until they reach five years of age.

In the early period, children's lexical items are often nouns related to objects, events, relationships, and so forth, which are closely related to their daily lives. Among the vocabulary reported at this earliest stage are words for family members, foods, and animals. Other researchers observed that lexical items which involve some level of speech act (i.e. requesting, inviting, refusing, etc.) are acquired at the earliest stage. Ogura (1999) compared the ratio of nouns and verbs to the total vocabulary of American and Japanese children. She found that American children had a higher ratio of nouns in their lexical store, whereas Japanese children had a higher ratio of verbs. She concluded that lexical acquisition by children is determined by the structure of their native language. There is no clear way to find out which lexical items, such as nouns or verbs, are learned earlier than others, since learning vocabulary is entirely contingent upon the immediate language environment of the children.

Another important factor in early lexical development is the overgeneralization which becomes evident when children make inflectional errors. They tend to treat irregular verbs and nouns as if they were regular verbs or nouns. Children may say "*goed*", "*singed*", "*sheeps*", "*mouses*", and so on. This is the proof that children work out their language rules by themselves, not just through imitating adult speech. They overgeneralize the rules of past tense or plural noun when they become aware of the application of certain morphemes to the words. Later children acquire rules concerning exceptions, however, acquisition of the rule takes a certain amount of time to manipulate, and is unfortunately unaffected by practice reinforcement until they comprehend how the rules should be applied.

3.4. Semantic Development

Although language of young children is very limited in terms of sound and grammar, children can send the message of "what they mean/want" effectively to the people around them. In fact, to some extent, children and adults are able to communicate even while children are still at their pre-linguistic stage.

Children's use of a single word contains multiple meanings. For instance a word "car" used in a *holophrastic sentence* can contain several meanings including; 'It's a car', 'I want the car', 'The car is broken', or 'I am playing with a car' and so on. To interpret the meaning of the utterance, the listener must consider the context in which it was made, as the *holophrastic sentence* is extremely closely attached to the context.

It should be noted that prosody, as mentioned earlier, also provides much information in terms of the meaning for children's one-word utterance. It also assists adults a great deal in their communication with children.

Bloom (1971), mentioned in section 2.3. of this paper proposed several semantic relations between the words uttered in their *telegraphic sentence.* She took a typical sentence, "*Mommy sock*", as an example, and analyzed the deep structure of the sentence. She claimed that there were at a minimum three distinct relations in the words of *Mommy* and *sock*. One is that *Mommy* and *sock* form 'agent-action relation' which indicates the meaning of 'Mommy is putting the sock on'. 'Agent-object relation' can also be observed which means 'Mommy sees the sock'. The third, 'possessor-possessed relation', signify 'Mommy's sock' (Brown 1978).
Again, it should be noted that the words uttered by children at the *holophrastic* to *telegraphic stage* are extremely versatile and they are closely related to the context in which they are uttered.

Now we will see semantic development from the aspect of overgeneralization as children learn the semantic system mainly by overgeneralizing semantic features from the very early stage of their language acquisition. For example, when children acquire the word "doggy", this word originally is a referent to a dog. At next stage, children may extend the word "doggy" to refer to all animals with four legs. This phenomenon is so called semantic overgeneralization. Semantic overgeneralizations often appear when children learn new lexical items. Gradually the overgeneralized meaning will be confined until they depict the actual referent. The process of semantic overgeneralization is closely related to how children recognize semantic features of the words they acquire. Semantic overgenralization often occurs when the referents share similar semantic features such as size, shape, sound, taste, or texture. As children learn more words, they specify semantic features and can recognize the word and its actual referent.

4. Conclusion

There is a large amount of research on the broad area of how children learn language, yet there is still no complete understanding of the language acquisition process. In the first part of this paper, eminent approaches in this area were discussed. Each theory of language acquisition has its strengths and weakness. No single theory offers a complete explanation of language acquisition. Children are equipped with an innate language capacity that enables them to continuously hypothesize the rules of their native language by comparing adults' utterances and their own utterances allowing them to build up correct knowledge of the language.

The latter part of the paper was dedicated to a description of the key aspects of language development such as its grammar, sounds, and vocabulary. The developmental stages described are general tendencies as observed among children acquiring their native language, regardless of the language. However, it can be expected that individual children will take different pathways to become a competent speaker of their native language.

I suggest that to enhance greater understanding of children's language development it is relevant to study the relationship between children's early stage of language development and their cognitive development during the period from the pre-linguistic stage to the emergence of grammatical awareness as this is a critical period in native language development.

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