

INVESTIGATION OF THE HISTORY AND METHODS OF STUDYING FIRST LANGUAGE ACQUISITION

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ABSTRACT

This paper aimed to examine the history and methods of studying first language acquisition by introducing and comparing three periods of time in which these studies were conducted. They were marked as: The Period of Diary Studies ranging, historically, from 1876 to 1926, the Period of Large Sample Studies which covered the time range of 1926 to 1957, and the Period of Longitudinal Studies which initiated in 1957. The methodology which was adopted for collecting data on child language acquisition in the period of diary studies was parental diary, which involved keeping and recording observation of child's learning experiences and procedures over some period of time. The observations were completed by linguist or psychologist parent by keeping a diary of child's ever-growing learning and language development. The methodological orientation of large sample studies period (1926-1957) was influenced by the emerging approach of behaviorism. Studies carried out in these years kept environmental influences under control by selecting subjects from similar socioeconomic classes and by incorporating equal numbers of sexes (boys and girls). The Longitudinal language sampling, however, adopted a different method for studying language acquisition which involved visiting and observing children's behavior at predetermined intervals for a reasonable length of time with the purpose of collecting a representative sample.

Keywords: *History, Language Acquisition, Period of Diary Studies, Period of Large Sample Studies, Period of Longitudinal Studies*

INTRODUCTION

Friederici (2011) defines language acquisition as a process by which individuals are able to acquire the capacity to perceive and comprehend language, as well as, to produce and use words and sentences to communicate their idea to others. Kosslyn *et al.*, (1995) maintained that language acquisition is viewed as one of the quintessential human characteristics because nonhumans do not have the capacity and capability to communicate by using language. Language acquisition is usually concerned with first-language acquisition, which deals with infants' acquisition of their native language. This notion is differentiated from second-language acquisition, which refers to the acquisition of additional languages in both children and adults. Lightfoot (2010) emphasized individuals' capacity of successful use of language. He believed that being able to use language successfully and effectively relies on acquiring a range of tools including phonology, morphology, syntax, semantics, and an extensive vocabulary. Language can be either vocalized as in speech or manual as in sign. In spite of the fact that the human language capacity is finite, one can say and understand an infinite number of sentences, which is based on a syntactic principle referred to as recursion. Furthermore, Lightfoot (2010) noted three recursive mechanisms that individuals possess, allowing for sentences to go indeterminately. These three mechanisms are termed as: relativization, complementation and coordination.

One of the characteristics of child language study is that it helps us to gain a great deal of information on children's linguistic behavior; for example, we will know a lot about when certain behaviors appear, such as the first words, the kinds of things children say, and the kinds of errors they make. As Karmiloff and Karmiloff-Smith (2001) posited, language acquisition is a complicated process that begins from the womb's fluid world and continues throughout the periods of childhood, adolescence, and beyond them. They maintain that during this long period of acquisition, the learner undergoes a lot of challenges, and his

language capacities go through numerous changes; these changes usually cover the young infant's early physiologically growing articulatory system in his mouth, throat, and larynx in order to be able to gain the ability for producing the sounds of his native tongue, and his later complexities during which infant produces and understands long narratives. Likewise, there are actually two main leading principles in the domain of first-language acquisition. They are speech perception and speech production. Donegan and Stampe (2009) explained that the capacity of speech perception always occurs before that of speech production, and then later the child gradually evolves a system by which he is able to learn a language, beginning with the distinctive features between individual phonemes.

In the present work as a review, the history of first language acquisition studies is dealt with by introducing three historically time periods. The methods of studying first language acquisition for each of the periods and their orientations are also taken into account.

Review of the Literature

The History of Child Language Studies

In general, the history of child language acquisition studies can be discussed based on three historical periods of time, each of which possesses its own dominant methodological approach. The three historical periods are classified under three headings nominated as:

1. The period of diary studies (1876-1926)
2. The period of large sample studies (1926-1957)
3. The period of longitudinal studies (1957-present)

For each period we will look at the major studies, the methodological approach, the most general findings, and the theoretical orientation.

1. Period of Diary Studies

This period which covers the time range from 1876 to 1962 was pioneered by the works of Stanley Hall in North America and William Preyer (1889) in Europe who tried to draw attention to the study of child language acquisition to determine the way in which child language development occurs. Before the emergence and development of empirical methods for testing theories of language acquisition, philosophers in ancient time wanted to know how individuals acquired the ability to produce and understand language. According to Stanford Encyclopedia of Philosophy (2008), these philosophers defined language acquisition as a subset of individual's ability to acquire knowledge and learn concepts. Matilal (1990) showed that some early ideas on language acquisition were proposed by Plato who thought word-meaning mapping, in a way, was innate.

1.1. Methodological Orientation of Studies in this Period

The methodological approach which was adopted for this period was parental diary. The so-called method involved keeping and recording observation of child's learning experiences and procedures over some period of time. The observations were made by linguists' or psychologists' parent by keeping a diary of child's ever-growing learning and language development. Their observations were made both on linguistic and motor development. A sample of work by Preyer (1889) can be viewed an indication of this sort of parental diary.

The collections of observations were then sometimes published and followed by some commentary on the nature of language acquisition. Roussey (1899-1900) offered an enterprise of this kind whose commentary on the language acquisition study was given. Some of these diaries were supplemented by interpretations, the most popular of which is the work by Vinson (1915). These works which greatly differ in terms of quality and detail supply a rich descriptive basis for child language acquisition.

1.2. Merit and Demerit of Studies in the Period

This approach of language acquisition study has merits and demerits on its own. The most important point that is considered as a strength of the approach is that any observation of language acquisition process is the resulting record of a parent observer that clearly knows the child and his behavior well, and the behaviors which are noted and recorded are not considered as idiosyncratic, but presumably either common ones or ones that mark a new development. The approach may suffer from some demerit in that the parent observer as the only authority for keeping records of child behavior may just record what he or

she sees to be an important development. Despite these problems, many of the diaries of this period remain as some of the most detailed reports on language acquisition.

1.3. Major Studies of the Period

One major study conducted in this period was the appearance of Taine's work as a paper (1976), which was the active publication of baby biographies. Taine (1976), through this paper, offered a report on his close observation of his own daughter's linguistic development during the time period of her birth to the end of her being 2 years old. His paper was established a basis and a foundation for further and more intensive diaries in the ongoing years. Following the active publication of the diary, Preyer (1889) was the second one to complete his diary in the light of his observation of his son's linguistic development. This scientific hint opened the horizon to the appearance of the first classic publication devoted to Stern's work entitled *Die Kindersprache* (1907). In addition, Stern paper *Die Kindersprache* is widely accepted owing to the view that it deals with the stages of language acquisition that all children are supposed to follow. Further studies of the time period on language acquisition can be found in the work of some other scholars, in particular, Hogan (1898), Bateman (1916) whose field of study is exclusively concerned with children's early language, Brandenburg (1915), Chamberlain and Chamberlain (1904,1905,1909), Nice (1917,1920) and Pelsma (1910).

The orientation of the most works and studies devoted to this period is greatly descriptive in that they are more concerned with the facts of language acquisition as the cornerstone, and less concerned with theory construction. At the same time, it is unfair to claim that these studies have been lacking in theoretical assumptions. According to Taine (1877), child is perceived as being very creative, and capable of discovering the structure of language from its environment.

1.4. How Aare Diary Studies Valuable?

Diary studies are important in that they provide a database for the field of language acquisition and language development. Ingram (1978) stated: "In any research project, the first step is an in-depth review of the literature. In acquisition, we have one additional step, the careful evaluation of available diaries for relevant data. One of the skills needed for the study of language acquisition, then, is the ability to extract data from diary studies. It requires careful reading and evaluation of the diaries relevant to one's interest. For example, we need to assess the parent observer's qualifications to observe certain aspects of language. It is difficult to get reliable phonological data, for instance, from a diarist with nophonetic skills; and the semantic study of early word meaning is of dubious value when we are only given word lists, with little mention of errors of usage. We are constantly rejecting or overlooking certain aspects in search of those points of importance."

As far as his production is concerned, Preyer (1889) maintained: "Characteristic for this period is the precision with which the various moods of feeling are expressed, without articulate sounds, by means of the voice. The general findings that might be classified as the conventional wisdom on language acquisition are based on data such as these."

2. Period of Large Sample Studies (1926-1957)

This period experienced a major shift resulting from the emergence of a psychological approach known as behaviorism. In other words, the emerging psychology of behaviorism brought about a fundamental approach to study the nature of first language acquisition. The studies related to this period are contrasted with the previous period of diary studies in that Stanley Hall's initial work was established as a basis for doing subsequent studies on child language acquisition. It was initiated by keeping observation and diaries of children linguistic behavior over the passage of time. The wealth of observational material proved stimulating and suggestive for later research workers. In contrast, the appearance and growing tendency of behaviorism as a novel psychological property in the years from 1926 to 1957 led most of the studies on child language acquisition to enter into a scientific realm, moving away from mere diary of child language behavior.

The behavioristic psychology claims that individuals are born with limited number of reflexes and differences among individuals are totally a function or a matter of their experiences rather than connected to genetics and genetics possession of characteristics. This theory rejects the principle of mentalism which

was claimed by the predecessors (Birjandi *et al.*, 2005; Mirhasani, 2003). Behaviorists wanted to develop a theory of learning where the child's changes in behavior were traced back to, or explained by, observable conditions of the child's environment. The emphasis of this theory is on the observable events in the interaction of the child and its surrounding linguistic environment and community. Considering this concept, child is not perceived as an active player of acquisition, but rather, he is perceived as passively controlled by the environment and external factors. According to Ingram (1989), the orientation of the wide range of works and researches on language acquisition related to this period was the measurement of language rather than the study of the controlling factors of the child's environment. Likewise, Child's internal structure and capacity like 'genius' was left unnoticed and disregarded by the proponents of behavioristic psychology.

The researches of this period aimed at determining what would be described and regarded as the normal behavior by establishing norms out of the observation of a large numbers of children under study. The concept of 'period of large sample studies' ranging from 1926 to 1957 originates from the aspect of collecting data on acquisition from a large number of subjects. Studies carried out in these years kept environmental influences under control by selecting subjects from similar socioeconomic classes and by incorporating equal numbers of sexes (boys and girls). As Ingram (1989) put it, this model of study tended to be **cross-sectional** in which studies of different children at distinct ages were designed.

2.1. Methodological Orientation of the Studies

The methodological orientation of these studies is contrasted with that of period of diary. One of the characteristics of these studies has been the cross-sectional aspect of the studies, meaning that studies of different children based on their distinctive ages were carried out. In addition to the selection of individuals of similar socioeconomic classes and background and equal numbers of boys and girls for the sake of study, age range was also taken into account. The second characteristic of the tendency of the studies is the systematic observation of child's behavior. If individuals were studied, they would be studied for the same amount of time and for the same behaviors. If a language sample were collected, it would be of some predetermined size, e.g. 100 utterances. If it were some specific behavior, a test would be constructed to be given to all the subjects. Further, the testing or data collection would be done by the same experimenter. (Ingram, 1989; Karmiloff and Karmiloff-Smith, 2001)

The third and last characteristic which is viewed as a merit is the analysis of the data achieved. The data were gathered and analyzed according to an experimental methodology whose emphasis was measurement, using some quantified results such as tables representing proportions and percentages.

2.2. Major Studies of the Period

Some large sample studies were conducted between 1926 and 1957, the most important of which, according to Ingram (1989) are given as follows:

Smith (1926) who marked the beginning of these studies conducted his study on length of sentences and general aspects of sentence development on 124 children between 2 and 5 years old during one-hour conversations. McCarthy (1930) devoted his area of research to the study of length of sentences and general aspects of sentence development on 140 children between 1-6 and 4-6. Following the enterprise, Day (1932) conducted an experiment on 160 children between 2 and 5 years old. He decided to study language acquisition in twins. To mark the growing area of interest in child language acquisition, Fisher (1934) studied the language of the gifted by sampling 72 children between 1-6 and 4-6. Davis (1937) carried out his study on the comparison of twins with singletons by 173 singletons, 166 twins, all of whom were chosen from among the children who were within the range of 5 to 6. Another major experiment carried out was that of Young (1941), whose field of study was the comparison of lower- and middle-class children. He made a sampling assignment by selecting 74 children between 2 to 5 years old. Templin's study (1957), which marked the end of studies carried out in this period, was conducted on the length of sentences and general aspects of sentence development in children.

2.3. Demerits or Weaknesses of this Period Studies

In general, the studies contributed to this period of time had some weaknesses. Ingram (1989) mentioned three striking weaknesses. These weaknesses caused the studies to be rejected by modern linguistics. One

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weakness is that the studies were practically lacking in linguistic sophistication because they relied on the superficiality of content. In other words, the studies had been conducted based on individuals' superficial knowledge of vocabulary, sentence length and speech sounds. The structure of rules and insight into the acquisition of these rules which are at the core of the study of language acquisition were ignored in these studies. For example, Irwin (1941, 1952) published articles on child language acquisition primarily based on infants' speech sounds development from birth to 2 years old. In the articles, he mostly focused on the phonemes development. A second weakness was the focus on grouped data rather than on the patterns of individual children. Language acts a system of rules in which different units and components are highly intertwined and interact with each other. A third weakness of these studies was their lack of methodological procedure to gather data. Most of these studies were done without the aid and benefit of modern recording equipment. The language data and samples were written as quickly as possible by someone assigned to do them. Concerning the mechanism with which observations were written, Templin (1957) claimed that the application of recording equipment is not found efficient when recording has to be completed in the places where unsatisfactory and varying acoustic conditions are governing.

2.4. Theoretical Orientation of Studies at this Period

Although most work during this period was descriptive, researchers attempted to explain acquisition from the behaviorist viewpoint. The behaviorists wanted to explain acquisition by assigning to the child very little innate behavior. On this view, the child would be born with a few very general skills. To explain language acquisition, behaviorists determine the set of environmental conditions that lead the child to identify and associate events with internal states. Bloomfield's (1933) attempt in his classic book entitled *Language* (1933) was the first source available in this view. He proposed five steps to account for the child's acquisition of word meaning. According to his viewpoint, a child recognizes similarities between its vocalizations and the adult's, and then associates a particular speech event with a context. He sees the child as first acquiring a word separately in comprehension and production, and only later connecting the two. He, furthermore, explained that children need to imitate adult words. They do repeat speech a great deal, being suggestive of some form of practice on the part of the child. Likewise, it is common to see children who have been conditioned to act to language. Mowrer (1960) came to account for language in behaviorist terms, and Jenkins & Palermo (1964) developed Skinner's ideas on how syntax could be acquired without resorting to innate linguistic principles.

3. Period of Longitudinal Language Sampling (1957 to present)

As discussed earlier in this extraction, historically, the whole studies conducted on language acquisition were classified in three periods of time each with its own time range. The period of diary studies, which began in 1876 and continued until 1962, marked the starting point of first language acquisition studies. Following that, through the emerging of the period of large sample studies (1926-1957), there happened a radical shift in the manner and method language acquisition studies were conducted. The appearance of the first psychological school *Behaviorism* led new studies of the period to draw attention to the role of the child in the learning of language, and the measurement of observable behavior. In other words, Behaviorists wanted to develop a theory of learning where the child's changes in behavior were traced back to, or explained by, observable conditions of the child's environment. The third period of studies called longitudinal language sampling has its starting point in 1957 and continues to the present time.

3.1. Methodological Orientation (Methods for Study)

Longitudinal language sampling involved visiting and observing children's behavior at predetermined intervals for a reasonable length of time with the purpose of collecting a representative sample. The longitudinal language samples involve and incorporate some of the experimental concerns of the large sample studies, and the children under study were visited on a regular schedule at predetermined times for a predetermined amount of time. To carry out the observation, sometimes two visitors were selected, one to take notes and one to interact with the child. The study environment was equipped with electronic device in which the sessions were tape-recorded for later transcription. Through longitudinal sampling much larger samples were sought, so that a more representative sample of the child's general language ability could be obtained. What separates these studies from the large sample ones as a distinguishing

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feature is that in the latter, sampling was often very short, up to the collection of 50 or 100 utterances. According to Ingram (1989), the children who were selected were found to be on the verge of beginning multiword utterances and also were talkative because they were supposed to meet the predetermined criteria.

One feature of these studies was the selection of more than one child instead of restricting observation to a single child under study. The selection of more than one child, as the subject on whom study was going to be conducted, was an absolute minimum necessity to determine general features of acquisition. To emphasize the importance of the deal, Ingram (1989) stated: "If one is chosen, we do not know if the child is typical or not; if two, we do not know which of the two is typical and which is unusual; with three, we at least have a majority that can be used to make such a decision."

3.2. Major Studies on Longitudinal Language Sampling

Four major studies were completed in this special period of time in four subsequent time categories. These studies were the result of four independent groups of investigators who indicated their renewed interest in examining language acquisition. They were Martin Braine at Walter Reed Hospital in Bethesda (1963), Ervin and Miller at the University of California (1964), Brown at Harvard University (1973) and Bloom (1970). Their tendency in studying language acquisition was common, but they each developed their own method of longitudinal language sampling. To carry out his study, Braine (1963) incorporated three children of three age ranges. He used parental diary of all the multi-word utterances the children under observation produced. Miller and Ervin (1964) carried out their own manner of experiment on five children, all of whom were below 2 years old. He kept close observation on the subjects' utterances initially weekly for 45 minutes every session.

As stated in the previous section, the studies of the diary and large sample periods had their own weaknesses in that the researchers paid no attention to the individuals' linguistic sophistication, a fact that led to superficiality of content. They studied language just at vocabulary, sentence length, and speech sounds level and domain, not beyond that. These later studies, however, wanted to look for the emergence of rules, and to describe the developing grammar of the child. They intended to go beyond dating the appearance of two-word utterances to writing rules of their structural properties. As Ingram (1989), and Karmiloff and Karmiloff-Smith (2001) stipulated, these researchers' renewed interest in and motivation for gaining insight into language acquisition happened to be coinciding with a paradigmatic change in linguistics which came into existence following the publication of Noam Chomsky's *Syntactic structures* (1957), in which Chomsky offered a new concept of the goal of linguistics from one of description to one of explanation, with a theory of grammar which placed syntax at its center.

Chomsky's creation of the concept of transformational grammar (1957) defined grammar as a set of rules which generates the grammatical sentences of the language. In the light of this attitude, researchers moved away from the idea of studying language acquisition just at phonemics and morphology level. They, rather, set the goal to establish how child acquires rules of sentence formation.

Chomsky (1965) made a distinction between competence and performance. He clarified that grammar of a language is not a description of a speaker's performance, but rather of his linguistic competence. The central understanding of this notion is that language samples, as we are concerned with in this section, are reconsidered examples of not only performance, but also performance through speaking only. Chomsky's viewpoint on this feature is emphasized because he was highly critical of the use of only language samples for writing grammars for children.

Chomsky's Notion of Nativism

Chomsky (1965) proposed an approach which is referred to as nativism. The nativists believe that some critical aspects of the language system are innate and language acquisition is innately determined. The basic assumption of the approach is that human beings are born and credited with a biologically built-in device which supplies them with the fundamentals of language acquisition.

Lenneberg (1967) defined language a species-specific behavior and believed that some certain patterns of perception, categorizing abilities, and other language-related mechanisms are biologically determined. Klein (1982), Birjandi (2005) and Huxley (1971) explained that the Language Acquisition Device (LAD),

proposed by Chomsky, provides child with some information about grammatical classes, deep phrase structure, and possible transformations. The LAD operates on raw linguistic data on which children are exposed to produce the particular abstract grammar of the children's native tongue.

Chomsky (1965) described language as consisting of two levels of representation, which are deep or underlying structure and surface structure. He, furthermore, introduced universal properties of language which are regarded as the universal principles of language, applied to restrict what can be a possible grammar of any language. The collection of these universal principles which determine the form of any humanly possible language is referred to as Universal Grammar (UG). Nativism argues that these universal principles (or UG) are innate, that is, they are part of the genetic program the child is born with.

Two arguments are proposed by referring to nativist approach: One point refers to the fact that language is highly creative. Individuals are able to generate lots of fresh sentences which they have never heard or seen before, and grammar can potentially generate an infinite number of novel sentences. Individuals' complex innate ability which is regarded a privilege enables them to use language creatively to generate infinite number of fresh structures. The other point to remember is that the language child hears is 'degenerate', meaning that it does not provide the child with the information necessary to acquire linguistic structure. The child's knowledge of the possible structure of the language is part of his Universal Grammar (Ingram, 1989).

Nativism, derived from the basic assumption that language acquisition is innately determined, embraces two possible positions: Maturationist view versus constructionist view. These two views are concerned with the way the principles of Universal Grammar (UG) become available to child. The constructionist view of language development stipulates that individuals are able to construct their cognitive structure or knowledge system based on their pre-existing cognitive structure through the active processes of assimilation and accommodation and finally achieving equilibrium. This psychological view accounts for all changes by a building up of structure. What occurs later does not replace what occurred earlier, but rather builds upon it. The maturationist view, which is related to Chomsky, proposes that the principles are released or become available to the child at some genetically determined time. They could come quite early, like the ability to walk, or later, like puberty. The distinction between these two views can be used to isolate what appear to be two distinct fields of language acquisition that have evolved in the last decade or so (Huxley and Ingram, 1971).

CONCLUSION

The history of first language acquisition studies was investigated by comparing three periods of time in which these studies were conducted. They are the period of diary studies which ranged from 1876 to 1926, the period of large sample studies which included the time range from 1926 to 1957, and the period of longitudinal studies which was marked in 1957.

In language acquisition, experiments have been used mainly to study children's comprehension in order to find out how much they really understand and to what degree they rely on contextual clues. A few experiments have concentrated on production and have used various techniques to elicit speech from children. However, the younger the children are, the more difficult it is to collect experimental data. It is notable to say that investigations of early language acquisition have relied mainly on naturalistic observations, involving writing down each utterance, noting the pronunciation and its apparent meaning.

Numerous controversies have been among psychologists, philosophers, and linguists about how children acquire language. Three of these issues are critical for a general theory about the acquisition of language. They are continuity in development, innateness in language, and comprehension and production.

Clark (2003) argued that all children acquire language in the same way, regardless of what language or the number of languages they use. Acquiring a language is the same as learning to play a game. Children learn the rules of the language game; they learn how to articulate words and how to put them together so that they appear natural and acceptable to the people with whom they usually contact and communicate. He, furthermore, maintained that acquiring language is a gradual and lengthy process, and involves a lot

of errors. These errors are in fact not errors at all, but a necessary component of the process of language acquisition which shouldn't be corrected because they will disappear over the passage of time.

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