Revisiting First Language Acquisition Through Empirical and Rational Perspectives

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Abstract

Acquisition in general and first language acquisition in particular is a very complex and a multi-faceted phenomenon. The way that children acquire a language in a very limited period is astonishing. Various approaches have been proposed so far to account for this extraordinary phenomenon. These approaches are indeed based on various philosophical positions that might have quite different underlying assumptions. In the present paper, major approaches to first language acquisition, i. e., empiricism and nativism are reviewed and critically evaluated.

Key words: First language acquisition, approach, empiricism, rationalism.

Introduction

The rapid and almost explosive acquisition of first language has been the subject of many studies to date. For example, it is argued that children seem to "understand early on that language reflects the speaker's intentions about how to view objects" (Clark, 2004, p. 476). This is indicative of the existence of complicated knowledge in children. Children master "a rich system of knowledge without significant instruction and despite a … deficiency of experiential data. The main question is how children acquire so much more than they experience" (Lightfoot, 1999, p. 64; cited in Anderson, 2005, p. 3). This great achievement needs explanation and that is why various approaches have been put forward so far to account for it.

There are various areas of enquiry in child language acquisition. For example, when learning a first language, children can "build on preexisting notions of what to represent with language as well as prior notions of communication. Or they could start from nothing and discover what it is (and isn't) represented in language" (Clark, 2003, p. 2). Since languages are different, the acquisition of children might be influenced by the characteristics of each language and by their social interaction and cognitive development as well. Research indicates that language acquisition of children is so rapid that after a few years, they master the first language they are acquiring almost as a native speaker of that language.

The most important and probably controversial issue in child language studies is concerned with the knowledge a child acquires. Is this acquired knowledge 'innate' or 'empirical'? The answer to this question might be quite different from one perspective to another in language acquisition. Two philosophical traditions with respect to knowledge in general are *empiricism* (Lock & Hume) and *rationalism* (Plato & Descartes). 'Empiricists' believe that knowledge is solely the product of experience and 'rationalists' on the other hand argue that knowledge is part innate and part experience. All approaches to

language acquisition adhere to one of these positions more or less and consequently there have been various versions of ‘empiricism’ and ‘rationalism’. The corresponding theoretical positions with respect to language acquisition are two extreme positions: *Behaviorism* and *Nativism.* According to ‘behaviorism’, all behavior can be explained in terms of stimulus and response. Linguistic behaviour is no exception. From another perspective, ‘nativism’ states that in language acquisition experiential and innate knowledge both play a role (Anderson, 2005).

One of the earliest approaches to language acquisition is ‘behaviorism’, which seeks to account for language acquisition irrespective of the role of cognitive factors. This learning theory which is associated with Thorndike and Skinner views learning "as the development of stimulus-response associations through habit formation, habits being developed by practice and reinforcement" (Johnson & Johnson, 1998, p. 28). Behaviorism has had a profound effect upon teaching and learning research as it has been a dominant approach for long. Pleased with their experiments with animals and consequent progress, behaviorists explain child language acquisition in terms of its contact with the environment

Behaviorism is based on three basic ideas: *conditioning, habit formation* and *the importance of the ‘environment’*. Conditioning as a key factor in language acquisition is the result of a three-stage procedure: *stimulus, response,* and *reinforcement.* Learning is seen “as a question of developing connections (known as stimulus-response bonds) between events” (Johnson, 2001, p. 42). ‘Habit formation’ is grounded on the significance of physical events or sense data. ‘Environment’ is used in a broad sense and refers to everything that is external to the organism. Behaviorism gives the dominant role to ‘environment’ and ‘organism’ plays an insignificant role. Skinner (1957) applied behaviorism to language and suggested that “much the same process happens in language learning, especially first language learning” (cited in Harmer, 2001, p. 69).

Exposure to the target language data is thus a key factor which shapes language acquisition on a stimulus-response basis. According to behaviorism, language acquisition takes place by means of general learning principles. There are no innate rule knowledge as it is the case with generative approach and there are no 'active attempts to learn' as proposed by Piaget (Tartter, 1998). As a result, innate mechanisms have no place in behaviorism.

Behaviorism, however, falls short of the necessary requirements of an approach in that it fails to have observational, descriptive and explanatory adequacy. Bodies of research conducted so far reveal that child language is very complex and rule-governed, the characteristics of which is at times quite different from that of adult language. Surprisingly enough, their language is systematic and they are able to produce structures which they had not been exposed to before. This shows that relying on input and exposure cannot present a coherent and sound framework per se. This boils down to the logical problem of the language acquisition which points to the inadequacy of the behaviorist account.

The fatal attack on behaviorism was by Chomsky (1959) who sharply and bitterly criticized Skinner. Chomsky stands in opposition to behaviorism in almost all respects. Pure behaviorism was found not to be a credible theory of language acquisition. The central point of the Chomsky's objection was that if all language is learnt behaviour, how children's performance includes things they have not produced before. This is "the result of having mental ability to process what we hear, challenging it through the language-processing parts of our brain where rules in some way reside, and where all input adds more information for the better functioning of that processor" (Harmer, 2001, p. 69).

Cognitive development is concerned with developing representational thought. The relationship between cognitive development and language acquisition has been debatable. Some scholars believe that cognitive development has nothing to do with language acquisition whereas others argue

that these two phenomena are quite interrelated. Hatch (1983), for example, argued that language faculty could develop irrespective of the role of cognitive abilities. On the other hand, Piaget views 'language acquisition' in terms of a set of cognitive stages. In his view, cognitive development is a prerequisite of language acquisition. He distinguished four stages in the thinking development of children from birth to around the age of 15. These stages form a kind of series each of which takes place necessarily before the subsequent one. The first stage is referred to as '*sensorimotor* stage' which begins at birth and lasts until the age of 2. At this stage of cognitive development, representational thought develops. 'Object permanence' – a case of decontextualized thought development - is discovered at this stage by infants. In Piaget's view, developing decontextualized thought is a prerequisite for language acquisition. The next stage is called "the *pre-operational* stage (about 2 to 7 years) during which the child is an 'ego-centric' thinker" (Johnson & Johnson, 1998, p. 246). At this stage, the child starts conceptualizing displaced objects. The third stage of cognitive development, namely, '*concrete operational thinking'* begins at 7 years of age and continues until the individual is 11 years of age. This stage is characterized by thinking through concrete problems. The final stage referred to as '*formal operational thinking'* (about 11 to 15 years of age) is concerned with developing abstract reflective thinking. Several researchers have suggested that "AGE LEARNING DIFFERENCES result from the change in general cognitive ability which occurs at this stage … " (Johnson & Johnson, 1998, p. 246). Piaget "emphasized maturational changes in the child's ability to reason" (Tartter, 1998, p. 342). Piaget gave prominence to the role of biological factors and the role of environment as well. In his view, what is innate is "the general ability to synthesize the successive levels reached by the increasing complex cognitive organization" (Piaget, 1983, p. 110; cited in Tartter, 1998, p. 338). Thus, he does not reject innateness but his view is much different from Chomsky.

One positive point of Piaget's approach is that it relies on the role of cognition and biological factors to account for language acquisition. As a result, it takes a more logical perspective and is more capable of explaining linguistic data. However, one shortcoming of the approach is that is fails to explain the causal factors. The approach provides us with a good description of language acquisition but it does not have much explanatory power. The biological aspects are also not elaborated and remain vague at best.

One difference between the two approaches explained so far is concerned with the unit of acquisition. In the Piagetian framework, "the unit is the word, and the child learns what words refer to and how to combine them. In the behaviorist account, "there is no complex system of internalized rules, either innately given or acquired through development, but a system of habit strengths" (Tartter, 1998, p. 344).

Generativists hold "the most extreme view in favor of innate control of language acquisition" (Tartter, 1998, p. 336). The generative approach to language acquisition pioneered by Chomsky seeks to account for language acquisition in terms of an innateness perspective. Chomsky theorized that "all children are born with "some kind of language processor – a 'black box' or 'language acquisition device' – which allowed them to formulate rules of language based on the input they received (Harmer, 2001, p. 69). Grammatical rules have in fact innate blueprints specified in the LAD. Universal Grammar (UG) provides the child with parameters and this enables the child to analyze "the input and constraints on permissible generalizations" (Tartter, 1998, p. 336). Chomsky, however, does not reject the role of environment. In his view, 'environment' plays a triggering role and thus its role is marginal. The dominant role is that of innate mechanisms. Chomsky stated that "the child's environment does of course have some role to play –after all, if the child hears no language then he will certainly not learn an L1. But this role is minimal, and the real work is done by the child himself" (Johnson, 2001, p. 47). Chomsky's views on

language acquisition have stimulated many studies to date and consequently there have been differing views in what is innate in language acquisition.

Generativists resort to a number of arguments to confirm their position including ‘poverty of the stimulus’, ‘lack of negative evidence’ and ‘fast rate of acquisition’ (Tartter, 1998). All these arguments point to the inadequacy of environment as the key factor in the process of language acquisition and imply that there should be some innate mechanisms which instantiate linguistic properties.

Generativists argue that there are a set of rules that enable children to acquire language so rapidly. As a result, children do not acquire the lexicon or sentences of the language but they learn those rules, which are capable of generating the linguistic structures of that particular language. The innateness hypothesis is in particular concerned with Chomskyan theory of language acquisition. The claim is that "much of the knowledge of language is built into the human mind rather than acquired" (Johnson & Johnson, 1998, p. 169). The hypothesis is formalized as 'Plato's problem' referred to as the poverty-of-the-stimulus argument. The knowledge acquired by children is very complex. As a result, it is impossible to justify it without recourse to its presence in the minds. Children are believed to be endowed by these inborn mechanisms which enable them to outperform the input they are exposed to. The postulation of LAD (Language Acquisition Device) by Chomsky was a means of solving this logical problem. Chomsky always claims that innateness is inevitable. All language acquisition theories have “to attribute certain built-in properties to the mind, whether the ability to associate stimulus and response, or the knowledge of principles and parameters. The dispute is over how much and what aspects of language are innate… " (Johnson & Johnson, 1998, p. 170).

One major drawback of the generative approach to language acquisition is that they focus on syntax acquisition and ignore semantic development. Tartter (1998) argues that “semantic development suggests stronger evidence:

The relationship of words to experience must be secondary to the experience" (p. 338). The difference between generative and Piagetian approach is that generativists believe in a kind of pre-programming and innate mechanisms as well but Piagetian scholars reject this concept and in their view what is innate is "the general ability to synthesize the successive levels reached by the increasingly complex cognitive organization" (Piaget, 1983, p. 110; cited in Tartter, 1998, p. 338).

'Generativism' seems to provide a more logical and justified framework for explaining language acquisition. 'Innateness hypothesis' is a good means of explaining the logical problem of language acquisition. However, a pure generative formwork ignores the role of social factors and thus fails to account for performance issues. Undoubtedly, the role of social factors cannot be denied and they can help explain variation in linguistic performance.

Some pieces of evidence might seem necessary to empirically confirm any of the aforementioned positions. Here, I cite a number of relevant studies as reported in Tartter (1998). Oller and Eilers (1988), for example, found that "while vocalizing may be innate, vocal control for speech needs experience – either of external speech models of one's own production, which can then be shaped through auditory feedback" (Tartter, 1998, p. 353). This finding gives support to an empiricist view of language acquisition but shows that experience alone cannot account for the data; in other words, innate mechanisms can not be ignored. Jakobson (1968) also found that the order of the acquisition of sounds is innate. Studies by DeCasper and Fifer (1980), Meltzoff and Moore (1977), Spring and Dale (1977), Kuhl and Meltzoff (1982) also show that some of the abilities are innate with respect to sound perception. However, they pointed out that infants learn about their language within the first weeks of their life. Again, these studies argue for an innate account, of course not in its *pure* form. The results of studies with respect to the acquisition of sounds in general show that "some distinctions are innate, accounting for universal performance with the

voiced-voiceless distinction" (Tartter, 1998, p. 357). Tartter concluded "we have an innate blueprint for speech generally and for some features specifically, but input finely tunes the blueprint to the precise features of the environment, here the adult language model" (p. 357). This shows that the role of innate abilities cannot be done away with at the expense of taking the role of experience into account.

With respect to the studies of 'meaning processes', it is possible to recognize that children use a set of categorization principles (see Clark, 1993; Markman & Hutchinson, 1984; cited in Tartter, 1998). These categorization principles might be general cognitive principles or they might be some language-specific principles. This might confirm the Piagetian account in part and an innateness position as well.

With respect to the acquisition of adult syntax, numerous studies have been carried out. For instance, Slobin and Bever (1982; cited in Tartter, 1998) found that "children do attend to word order and do structure their early sentences *using the order most frequent in the parent language*" (p. 373). This is indicative of the role of experience and exposure to the language input. Tartter (1998) argued that "the current view, consistent with both *Piaget* and *Skinner* [Italics mine], is that children develop schemes for typical sentences of their language, where typicality is determined by frequency and salience" (p. 374). As it can be understood the current view is in line with the Piagetian and behaviorist accounts. The early studies assumed that syntax was mostly innate. Some pieces of evidence supports this position in part; however as Tartter (1998) mentioned, "the bulk of evidence refutes a strong syntax–native position" (p. 381) (see de Villers & de Villers; 1973; Bloom & Lehey, 1978; Bloom, 1991 among others). Tartter (1998) concluded, "what may be universal is … the cognitive tendency to categorize the world in terms of agents and their effects. What may be universal too are general operating principles for

categorizing and organizing both objects and language units into patterned structures" (p. 381).

Conclusion

On the basis of the above-mentioned studies, it can be concluded that the studies are inconsistent in some respects. Some studies - referred to in this paper - point to an innate account of the first language acquisition. Although some of them do not reject the role of experience, they argue that without an innate position the data cannot be accounted for. That is indicative of the role of innate factors which seem to influence language acquisition to some degree. In other words, it shows that an innate account is necessary to justify the findings. Some other studies such as those in the area of the acquisition of adult syntax, argue for a general cognitive ability as proposed by Piaget. However, in general it seems that an innate account is the cornerstone of many studies reported here. In other words, an innateness position – not in its strong version- cannot be ignored if we are to account for the data logically. In sum, no single account can account for the whole data by itself.

'Universality' and 'uniformity' are two defining characteristics of first language acquisition. Any theory of language acquisition has to consider these two issues. Otherwise, it falls short of the requirements necessary for an adequate theory of language acquisition. The way various approaches seek to account for these features is different and having these criteria in our mind, we can better judge the relative truth-value of each theory or approach to language acquisition.

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