

Nature or Nurture? Which one is a more Determining Factor in the Development of Language?

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Abstract

Review Article

The nature-nurture argument in language learning has yet to be settled. Considering various claims and beliefs on the prominence given to each extreme of nature-nurture continuum, it seems much wiser to take the mid-position and to claim that language both emerges and flourishes out of human disposition and contextualized linguistic environment. One may resolve this nature-nurture controversy and claim that although experience does not account for all language development in humans, it serves as a trigger which catalyzes language growth in humans through stimulating built-in inner capacity.

Keywords: nature; nurture; trigger; inner built capacity.

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INTRODUCTION

In the context of the nature vs. nurture debate, “nature” refers to biological/genetic predispositions’ impact on human traits, and nurture describes the influence of learning and other influences from one’s environment. The debate over whether the strengths and weaknesses of people are the result of nature or nurture has, and somewhat continues to rage on between scholars and lay people alike. This debate has had significant social implications, particularly concerning what are thought to determine people’s ability to learn/intelligence.

The debate on which of the two, nurture and nature has the most effect on the early development of the child is never ending. Arguments have always been based on the fact that either the environment or genetics plays an important role in the early development of the child. So, the question is, which is it? Is one more important than the other or are they both equally important for the development of the child. The argument has always been based on the fact that to what extent does the environment and inherited factors affect the behavior of an individual. Debate also revolves around the fact that whether the development of the child is governed by a pattern the child has been born with or it is shaped through the experiences that the child encounters as he grows.

As an extremist dichotomy, nature-nurture debates have always been appealing in language development studies. Those who advocate the nature side of language development (nativists) have are supporters of the existence of a Universal Grammar and on the other hand the role of experience and environment is emphasized from the nurture side (empiricism). Clark [1] maintains that such dichotomy is a false one as far as distinguishing nature from nurture is almost impossible due to that fact that “from conception on, fetal development is shaped by maternal health and nutrition as well as by the fetal cells that are maturing” (p. 2). Chomsky [2], considers nature-nurture dichotomy as an absurd one when he claims that “I don’t see any point to the debates about nature and nurture - it seems as ridiculous as debates about chemical versus electrical. If you have some phenomenon and both electrical and chemical processes are involved in it, you don’t have a war between chemical and electrical - you just try to find out what’s going on. Nature and nurture have a perfectly obvious common-sense meaning, in terms of high-level abstract individuals, roughly what’s in genes and what comes from the external environment - more subtle than that but that’s the rough distinction” (p. 398). Rather than seeing to language development as a nature or nurture only phenomenon Lust [3] proposes that “full knowledge of any specific grammar is not biologically programmed; the theory of Universal Grammar does not propose that it is. The input of specific language

data must interact with whatever biological programming exists within children” (p. 101). Lust [3] provides evidence by contending that deaf children develop their babbling through six years when hearing children, who follow a regular course of babbling development, achieve this within their first twelve months. The interesting point is that researchers have discovered structural patterns common to both deaf children and those (hearing) children who learn languages from conventional language models [3]. At the end Lust [3] concludes that “These results confirm the indomitable drive to create language in the human species, and the inherent capacity of the mind/brain to impose structure on this language, given wide variation in amount and nature of input. They suggest that children are predisposed to create language out of whatever input they receive and do so at more than one level of representation, reflecting the structure of the Language Faculty” (p. 104), and that “while there can be no doubt that experience is necessary for language acquisition, the form of experience can vary widely. The genesis of a new language appears to require the existence of a community, but the ontogenesis of a first language in children can involve different amounts and types of communicative interaction. All normal children appear to contain within themselves the ability to create a language in spite of wide variations in experience” (p. 106). It can be claimed that despite the presence of pre-endowed biological capacity in humans to naturally develop language, the role of environment is undeniable as a prerequisite trigger. The proof to such claim is the fact that when the argument made from the nature point of view runs as: “If the capacity to learn language is the characteristic that distinguishes humans from other animals, then feral children removed from the wild should be able to learn language” [1], from the nurture point of view the argument is different: “It is unsurprising that feral children have no language because they have had no exposure to human society and so no opportunity to learn. Once in society, they would of course learn language” [1]. On the other hand the fact that feral children lack any sort of language and have problems in delayed acquiring of normal languages seems to confirm the fundamental role of environment as a precondition of language development. According to Clark [1], studies on feral children show that “children require exposure to language in normal social settings. Isolation and mistreatment, resulting in emotional and social deprivation, have highly adverse effects on general development, even for children who might otherwise have developed normally” (p. 366).

After performing neuroimaging studies, Lambertz, Pannier and Dubois [4] endorse the genetic and biological potential of human brain in language development. They contend that: From the first weeks of life onwards, the human brain displays normalization and phonetic categorization capacities, and rhythmic and prosodic sensitivity, which make it particularly

adapted for processing speech. These capacities rely mostly on brain circuits similar to those observed in adults. It seems unlikely that the influence of the prenatal and postnatal auditory environment is sufficient to generate this complex organization in only a few weeks of exposure. On the contrary, the similarity between functionally immature infants and competent mature adults implies a strong genetic bias for speech processing in those areas (p. 372).

Such pre-endowed genetic capacity is not always at the reach of children and according to Kirjavainen, Theakston, Lieven and Tomasello [5] it is limited either in regard to availability or performability:

The maturational stance holds that it is not until at a certain pivotal point in development that a certain aspect of the innate grammar becomes available for children, thereafter enabling adult-like production of that aspect of grammar. The performance limitation view, on the other hand, holds that while children have adult-like language representations, their general cognitive processes are not adult-like and hence errors can occur during production.

As a way of responding to Chomsky's LAD learning system, Bruner [6] theorized the language acquisition support system (LASS). Bruner states that through LASS, parents often use books and images to develop their child's language abilities and their ability to get involved in conversation thus further developing their language skills. So unlike Chomsky's LAD theory where language acquisition was determined by a mechanism in the brain, Bruner's theory acknowledges the role of nurture where parents or guardians act as the 'support system' to promoting a child's language development. Within the LASS theory there are four main components; gaining attention, query, label and feedback, which all require social interaction between adult and child. Contrasting to learning theorists' approach, Bruner [6] believed that simply listening to language is not a sufficient way to acquire language skills. Instead he thought that, 'the child needs to be exposed to the mutual eye gazing and turn taking that are needed for conversation'. So, language, according to Bruner, relies heavily on the role and exposure to social context.

Early childhood development is essential for the normal growth of any child. Essentially it can be defined as the time period between birth and the time the child begins to attend pre-school at around four years of age. The development period is the most critical part of any child's development. Studies have always been conducted to find out whether the child's environment, i.e., nurture and the child's genetics i.e. nature are both equally influential in the development of the child or one of them is more influential than another [7].

Final remarks

Given the poverty of stimulus in the environment, as claimed by Chomsky, and the fact that no language emerges without environmental experience, one can take a mid-position within the nature-nurture controversy and claim that although experience does not account for all language development in humans it serves as a trigger which catalyzes language growth in humans through stimulating their inner built-in capacity. What the nature of this built-in capacity is; however, needs to be investigated much more cautiously. To put it into a Chomskian perspective, this inner capacity is the Universal Grammar (UG) which is constituted of principles and parameters. This has inclined scholars to consider the role of experience as a trigger which seldom results in induction due to the presence of aforementioned principles and parameters. Crain and Pietroski [8] claim that although some aspects of grammar can be learned through induction based on linguistic data, other aspects of grammar cannot, and since UG (innateness hypothesis) serves as the sole explanation for the gap between “normal human experience and the linguistic knowledge we all attain” (p. 30) up to now, it should be preserved and adhered to. As a denial of Crain and Pietroski’s [8] viewpoint, an alternative view would be the presence of an inductive Hypothesis Testing Device (HTD) within human brain as the representation of human’s built-in

capacity for language development, which better justifies the poverty-of-stimulus considerations.

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