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Landmarks of First Language Acquisition Theories

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Abstract

Language learning is a natural and unique human development process according to which the child learns his mother tongue as a first language. The simplest theory of language development is that children learn language by imitating adult language. Another possibility is that children learn language through conditioning. Chomsky proposed the hypothesis of the innateness of language. Piaget believed that language is a cognitive process and a product of the development of public intelligence. According to Vygotsky, although children have a cognitive basis for language learning, language development is for expressing functions. Finally, connectionists believe that children learn language without even understanding the rules or even without the rules. Some attempts to link linguistic and cognitive development to the use of Piaget steps have been unsuccessful. Major advances have been made in understanding language and cognitive development, but these advances have not shown a close relationship. Given the state of knowledge today, it is not possible to make a definitive choice of one of the various theories. It seems logical to say that a combination of imitation skills, innate language learning tools, cognitive development, and social communication interactions contribute to language development. This article is a review of theories of language development and learning in children.

1- Introduction

Although researchers have shown that chimpanzees can learn sign symbols and other visual forms of language, the structure of language is unique to the wise man. Some scholars insist that the administrative system of someone learned by these primates is not linguistic, that is, primates do not think words. Instead, they use a signaling system that is far removed from the symbolism and syntax of human language. However, no group questions that there is a difference between the chimpanzee's difficult-to-learn responses to the signal, and the 18-month-old's first optional sentence. Language development and learning is a natural process of development according to which the child learns his mother tongue as a first language .

Linguistically, all children go through similar times at the same rate. Learning a language is more like learning skills such as walking that come into play at an early age than skills such as cycling by writing that are learned later in life. Effortless, fast, and natural language learning in children is probably the result of the fact that language is a mental talent in the human brain, and as the brain grows, the language to which the child is exposed is organized in a way that is common to all children. The main theories of language development and learning along with their background and main features will be described below.

2- Rationalism

Rationalism is a type of position discussed within many fields, such as epistemology the branch of philosophy related to theorizing about knowledge. Bechtel (1988) reported that the traditional rationalism conveyed as the dominant philosophical tradition on the European continent during the 17th and 18th centuries. The three crucial representatives of this position were Descartes (1596- 1650), Leibniz (1646- 17 16), and Spinoza (1632-1677). Of these, Descartes is the one to talk about the characteristics of speech in his work, Discourse on Method. These characteristics are as follows according to Percival (1968, pp. 3-4):

1. Words reveal thoughts.

2. True speech differs completely from natural cries in that it does not indicate corporeal impulses.

3. Words used in true discourse are not merely sounds repeated by rote but are directly expressive of thoughts.

4. In genuine human discourse, what a person says is appropriate to 'whatever is said in his presence,' or is 'relevant to the subjects at hand.

However, the Rationalist theory of language learning, which is fundamentally a philosophical theory of epistemology in its essence, was developed by Chomsky in 1965. Then, it came into being partly as a reaction to the Empiricism. Chomsky was involved in many rows with empiricists regarding the question of "what the mind must be like in order to account for our ability to learn language" (Stitch, 1979, p. 330). Stitch (1979) elaborated that Chomsky developed his arguments by taking a rationalist position while explaining what goes on in mind when one is learning a language and further added "according to Chomsky, what happens is that the learner comes to a tacit knowledge or an internal representation of the rules of a grammar" (p. 330). Moreover, Lakoff (1968) carried out an extended explanation to this by summarizing the rationalist view of language as follows:

The general grammar results from what is inborn, or 'habits of mind,' and here 'mind' means 'the human mind,' rather than the mind of one national group or individual. The particular grammar consists of bylaws, aptly so-called since laws are arbitrary and changeable, as are these rules. (p. 8) Chomsky was considered as a rationalist since he was inspired by the theses of the traditional rationalism while developing his own linguistic theory, yet without accepting all the assumptions of the traditional rationalism.

Behaviorism

Imitation

The simplest theory of language development is that children learn language by imitating the language of adults (Harley, 2014). Through imitation, children learn a series of sentences that they can store in their brains, and when they need to use a particular sentence, they recall that sentence from memory and use it (Ness, 2005). Although imitation plays a role in learning words (the parent points to the lion and says that the lion, the child is trying to repeat the word) (16) and children are openly imitating some aspects of adult behavior. It is clear that imitation cannot be the main force of the initial development of language, especially the development of syntax. According to Chomsky, if the Storage Bin Model is correct, one must have very limited language ability. They recall sentences from memory and at the same time have great difficulty communicating with others who use new structures because the constant retrieval of previously stored sentence structures does not allow us to understand sentences we have never heard. When we write a story, novel, writing or even a research paper, we do not resort to a set of grammatical structures. Instead, although we often use the same words over and over again, we create new sentences (and therefore, new ideas) each time.

According to Chomsky, because the child's linguistic achievement is so great in a short period of time, it is difficult to explain the development of grammar through the input of the external environment (Ness, 2005). An examination of the sentences that children produce shows that they often do not imitate adults (Harley, 2014). Young children constantly say things they have never heard of as an adult (Nolen-Hoeksema, Fredrickson, Loftus, & Wagenaar, 2009) and make all kinds of mistakes that adults do not make.

Conditioning

Another possibility is that children learn language through conditioning (Nolen-Hoeksema. et al, 2009). In his 476-page book, Verbal Behavior, perhaps the first book to talk about language learning, Skinner sought to explain language learning in the context of his theory of behaviorism. He extended concepts such as conditioning and stimulus and response to first language learning (Pishghadam & Tabatabaeyan, 2013; Trask, 2007) and provided a clear and precise explanation of language learning (Knoors & Marschark, 2014). He believed that all behaviors could be learned through the conditioning of actor, and believed that language was simply another form of behavior that could be learned like any other behavior. In

his view, the basis of all learning is reinforcement (Lund, 2014), and young children learn language through instrumental conditioning (a general learning mechanism in pigeons, rats, and humans in which learning is largely controlled by reinforcement, generalized, and clean punishment) . His learning theory was that children learn language only by imitating and attaching verbal tags to objects and appropriate reinforcement (Knoors & Marschark, 2014). Accordingly, verbal behaviors are shaped by interactions. Reinforced stimulus responses, in turn, condition the child to choose a pattern of predictable responses.

Skinner suggested that children:

1- Learn language based on the association created by conditioning,

2- They generalize new things through analogy (stimulus generalization),

3- And much of their behavior is shaped by active conditioning, which leads to the dominance of culture over language development, while the genetic framework provides a minimal basis for learning (Mellon, 2009).

Innatism

Chomsky in the article "Critique of the book Verbal Behavior by B. F. Skinner", published in 1959 in the first issue of Volume 35 of Language Journal (Pishghadam & Tabatabaeyan, 2013), stated a significant theoretical separation from Skinner's view that the complexities of language development could not be explained by conditioning from association and analogy. Grammar principles are very abstract, and infants need to have a neural pattern for mental grammar in order, for example, to determine the pattern of possible sentences, to be able to speak and understand sentences (Mellon, 2009). He pointed out that learning a language through reinforcement will be a slow process that requires careful shaping. Nevertheless, children learn language quickly and without precise teaching of words and sentence structure by their parents (Lund, 2014). In his opinion:

1- Parents use inappropriate language patterns when talking to each other

2- Children may not be able to learn all the structures by imitation

3- Parents do not reinforce the correct grammatical structures of young children (Owens, 2015).

Furthermore, according to Crain and Lillo-Martin (1999), the innate knowledge, known as the language Acquisition Device (LAD), includes principle common to all human languages, called the Universal Grammar (UG). This is similar to Pinker(1994, p.43) claims that the evidence corroborating the claim that the mind contains blueprints for grammatical rules comes, once again out of the mouths of babes and suckling's. For example, looking at the English agreement suffix- s as in He walks" Chomsky theorized that children were born with a hard-wired language acquisition device in their brains (Pinker, 1994). LAD is a set of language learning tools, intuitive at birth in all children (Pinker, 1994). Pinker (1994) further expands this idea into that of universal grammar, a set of innate principles and adjustable parameters that is common to all human languages. The language acquisition Device (LAD) is a postulated organ of the brain that is supposed to function as a congenital device for learning symbolic language (Chomsky, 2009).

According to Chomsky, man has an inherent universal grammar, which in its standard sense determines the structural features in which all human languages are common and apparently should not be learned. For example, words organize phrases and sentence expressions, a syntactic operation in which words may be identified and subjected to phrasal situations. Global grammar also includes specific mechanisms for learning the non-universal features of the language to which the child is exposed (for example, in English the question form requires a change of subject and auxiliary verb). The concept of universal grammar is generally misunderstood. Universal grammar is not what all languages have in common, nor is it a collection of language worlds, nor is the abstract semantic structure common to all languages. In fact, the universal grammar box is considered a tool that the human child brings with him to learn the language. In this sense, universal grammar provides a set of devices with basic principles for constructing languages that each language orders in a specific way (Language Acquisition Device Theory) (Tallerman & Gibson, 2012)

Chomsky proposed the hypothesis of the innate nature of language, according to which a number of important features of language were constructed in our brains as a genetic gift (Trask, 2007) and believed that it was this innate ability that made language learning possible (Johnson & Johnson, 2005). Chomsky's main claim to inherent biological knowledge / gift (universal grammar) is Plato's problem, known as arguing on the basis of motivational poverty (Mintz, 2010; Macneilage, 2010). Bertrand Russell formulated Plato's problem: "How can a man whose contact with the world is so brief, personal, and limited know so much?" In the field of language learning, it is argued that children's language knowledge is far greater than what can be learned through experience (Lightfoot, 2005) and that children learn much more about language than they can from the language environment around them (Tavakoli, 2013).

In the true sense of the word, children acquire generative grammar based on very little experience. Therefore, learning a language requires more than imitating what we heard in childhood and more than simply passing on a set of words and sentences from one generation to the next (Lightfoot, 2005). Such motivational poverty is the basis of global grammar (Tavakoli, 2013).

The language that children hear is inadequate in two ways. First, the speech that children hear is full of slips of the tongue, incorrect beginnings and delays. Sounds come together, so words are not clearly separated. Second, there does not seem to be enough information in the language that children hear to be able to learn grammar based on it. They are not naturally exposed to sufficient examples of grammatical structures that enable them to deduce grammar. In particular, they do not hear non-verbal statements of something that has been labeled wrong (for example, listen to Sam, "I became a man" is a mistake). These cases form the argument based on stimulus poverty (Harley, 2014). Thus, the question arises as to how language learning is possible, assuming incomplete and

noisy language input for the child, and the arbitrary and very complex rules of natural language (Tallerman & Gibson, 2012)?

According to Chomsky, children are born with Lee's knowledge of language (what he calls the "linguistic organ") (Jerry, 2014) and the rabbi's order is so abstract that children must have the tools to learn such a complex, rule-controlled system. Language learning (LAD) is inherently special, enabling them to learn their first mother tongue so effortlessly (Knoors & Marschark, 2014). Assuming that Chomsky's hypothesis that language input is very limited, irregular, and often arithmetically incorrect, and that children alone could not learn the language on that basis, the Chomsky language learning tool was essential (Knoors & Marschark, 2014). Such motivational poverty led Chomsky's theory that emerging language can only be explained on the basis of intrinsic mechanisms unique to the human brain (Mellon, 2009). Accordingly, language is inherent and some of its components are special (Harley, 2014) and children do not learn language entirely solely through interaction and communication (Knoors & Marschark, 2014), but there must be a significant amount of innate knowledge to enable children to distance themselves. To bridge the gap between language and the resulting linguistic abilities (Simpson, 2010). Intrinsic knowledge seems to be so rich that children pass the normative course of language learning even without language users as role models (Hoeksema. et al, 2009). Chomsky later replaced the concept of intrinsic universal grammar with the tool of language learning (Harley, 2014).

Other language theorists have considered intrinsic mechanisms for language learning (Mellon, 2009). Language psychologist Steven Pinker coined the term language instinct to refer to this aspect of biological nature. The mental talent of language, which is highly questionable today, is built into our genes, and learning a first language may not be very different from learning to see. At birth, the visual system does not work properly and it needs to be exposed to the visible world for a while before normal vision is achieved (Tavakoli, 2013).

With a more fundamental view of institutionalism, he saw linguistic and cognitive development as distinct from Chomsky (Field, 2004). Pinker considers language to be very modal and has significant intrinsic foundations (Harley, 2014). There is evidence that children who were not exposed to any language at all invented and used a language for themselves (Tavakoli, 2013). In 1990, Pinker and Bloom published The Natural Language and Natural Selection, attributing the growth of language to the forces that produce biological selection. Their evolutionary theory of language proposes criteria for features learned through natural selection (Mellon, 2009). Although other scholars consider evolution to be a cultural rather than a biological phenomenon, they see language as a complex biological adaptation that evolves through natural selection (Clark & Jackendoff, 2010). Pinker has recently attributed the dimension of creativity to the grammatical mental grammar inherent in growing language, meaning that young children's creativity is inherent in understanding and constructing sentences they have never heard (Mellon, 2009). The inherent capacity of language has not yet been confirmed, but the existence of a language instinct has an intuitive meaning for many scientists (Johnson & Johnson, 2005).

In the field of studies, they support the belief that mental grammar is inherent. First, deaf children of hearing parents who are deprived of exposure to sign language patterns in the family develop their own immune systems. These systems, known as home gestures, have organized features in common with spoken language. Second, the observation of the critical period or the window of opportunity for learning the first language (Johnson & Johnson, 2005), beyond which the ability to learn the real language is not available, indicates the inherent mechanism of the language (Mellon, 2009).

Similar terms used differently by Piaget and Vygotsky

The following table compares their views concerning some terms as far as language development is concerned.

Terms	Piaget	Vygotsky
Language development	Language development is relatively peripheral to Piaget's theory that child's cognition development results from the internalization of the means-ends organization of sensorimotor activity achieved in early development	Language development is the principal motor of development, as it mediates the child participation in both intellectual and social life surrounding them. That is, the mechanisms of cognitive development are not independent from the… linguistic signs which the child confronts in his interaction with the world (Fletcher & Garman, 1986:10-11)
Egocentric speech	The prevalence of egocentric speech over communicative speech in younger children became the real foundation of Piaget's theory. He emphasizes that egocentric speech does not provide communication. It is rather chanting, rhyming and accompanying the major melody of child's activity. A child may merely repeat words, or play with words, without understanding the concept. It is not intended to convey information.	Vygotsky insisted that the earliest speech of the child is social. At a certain age this original social speech becomes rather sharply divided into egocentric speech, that is, speech-for-oneself and communicative speech, speech-for-others. Egocentric speech gives rise to inner speech which is later product of the transformation of a speech that earlier had served the goal of communication into individualized verbal thought. Egocentric speech is a form of self-guidance which occurs because it has not been internalized (Lund, 2003:25; Vygotsky, 1986: xxxv; 28).
Language and thought	Language is dependent upon thought. Language cannot be used to communicate ideas until the child has developed the appropriate concepts.	Language and thought are initially independent and separate, but that during childhood thought gradually becomes more and more verbal and that language requires and reflects thought (Lund, 2003:26).
Social interaction, context-dependency and language acquisition	For Piaget, social-interactive and context-dependent properties of language are somewhat peripheral to the mechanisms which set development in motion. His view of language is explicitly inspired by a Saussurean framework. He considers language as an abstract system of sign relations. With respect to language acquisition, decentering of children's cognitive structures underlies a decontextualization of children's speech, allowing them to speak of displaced entities, events, and relations among them which are not part of the here-and-now and/or to take into account the perspectives of their listeners. The clearest impact of decentering on language acquisition within this paradigm is shown in the child's ability to use language as an abstract, context-independent system of signs (e.g. in logical reasoning).	In contrast, the context-dependent and social nature of language is primary in Vygotsky's developmental theory. His approach to language is much more consistent with some functionally and/or pragmatically inclined semiotic and linguistic theories … than with Saussurean approach. His linguistic framework is apparent in a number of ways: e.g., his focus on speech rather than langue, a distinction which can be compared to … Saussure's distinction between *langue* and *parole*, his focus on the indicatory basis of communication in his discussion of both nonverbal signs and verbal sings, his distinction between *sense* and *reference* (Fletcher & Garman, 1986: 17-18).

Connectionism

Connectionism believes the mechanical operations of nerve system. Neurons are interpreted in terms of body and the result of their cooperative action is called mind. In this theory strong interconnectedness of the human brain is the main concern. There are some neural networks which are loosely modeled after the complicated biological processes involved in reasoning or better say cognition. Alexander, Frith and Frith (2014, p. 141), summarized the main principles of connectionism in this way:

"1. Information processing involves many simple elements called neurons.

2. Signals are transmitted between neurons using connecting links.

3. Each link has a weight that controls the strength of its signal.

4. Each neuron applies an activation function to the input that it receives from other neurons. This function determines its output."

They further add that links with positive weights are theoretically called by scholars as excitatory links and links with negative weights are known as inhibitory links. In connectionism, neural network (NN) a machine learning approach stimulated by the system in which the brain does a certain task related to learning—plays an important role. Knowledge regarding the learning task can be obtained through different forms of examples aka training examples during the learning process.

In interactionism, both mind and body exist and they interact with each other. Regarding interactionism, Popper refers to three worlds– world 1 is nature or objects, world 2 is mind (feeling and thought) and world 3 is objective knowledge. World 3 affects world 1 via world 2. For example, we can imagine a gardener who has knowledge about gardening. Through his feeling and thought, he intentionally acts upon nature, and plants a tree (Steinberg, 1991). The creativity of language, also, resembles the extensional position. Based on some finite rules, human beings produce an infinite number of sentences. Moreover, mathematically, we may combine language elements together in different ways, and every time, we do obtain something new or different (Yule, 1988). Therefore, Chomsky's position covers some characteristics of some other positions.

Emergentism

In a similar vein with theories such as connectionism and Piaget's behavioral change, emergentism now seems to be capable of explaining language acquisition, because it challenges nativism and has some claims. All reasonable scholars today agree that genetics and environment interact to determine complex cognitive outcomes. Genes do not act independently; rather, they can be turned on and off by environmental signals. A good deal of emergentism studies within linguistics adopts the techniques of connectionism which, in turn, provides a useful way to test various predictions about language acquisition. According to Piaget, logic, knowledge, and grammar probably emerge from the interaction between genes and the world (*Bates*, Elman, Johnson, Karmiloff-Smith, Parisi, & Plunkett, 1998).

The emergentist approach to language acquisition views language as a structure arising from interacting constrains. In an emergentist view, accounts generatively emerge not from stipulated rules, but from the interaction of general mechanism. There is no gene in the bee that codes for hexagonality in the honeycomb; rather, it is the emergent consequence of the application of packing rules to a connection of honey balls of roughly the same size. MacWhinny (1999) quotes Tomasello and Akhtar (1995) as having emphasized the crucial role of the mutual gaze between mother and child in support of early word learning. The burst of vocabulary has been attributed to the control over-articulatory representations (Schwartz, 1998). MacWhinny (1982) also refers to the role of syntactic patterns in the learning of new words due to extensive use of stable syntactic frames.

The factors emergentists turn to, for their explanations, are the features of physiology and perception, processing and working memory, pragmatism, social interaction, and properties of input and of the learning mechanism. Contemporary emergentist work remains committed to the idea that much of language acquisition involves the use of simple learning mechanisms to extract statistical regularities in ordinary linguistic input – knowledge of language is created and strengthened in response to opportunities to interpret and/or from utterances. A well-defined emergentist program for the investigation of language or its acquisition is based on the simple thesis that the core properties of language are best understood with reference to more fundamental non-linguistic (non-grammatical) factors and their interaction. Emergentist accounts are now showing how language structure emerges from social pressures, memory mechanism, attentional focusing, motor control, and loads imposed by online processes (MacWhinny, 1999).

Temporarily, we may conclude that a convincing emergentist account of development is now possible because (1) bee-hive metaphors have given way to an explicit, formal account of emergent form; (2) it is now possible to simulate behavioral change in multilayered neural networks that embody the non-linear dynamic principles required to explain the emergence of complex solution from the simpler inputs, and (3) neurobiological results support the case for an emergentist approach to the development of higher cognitive functions.

Interactionism or Social Constructivist

In contrast to innatism, there is an interactionist approach that emphasizes the combination of biological and environmental effects (Owens, 2015). Interactionists challenge the facts that innsatists strongly believe in (Hoff, 2013). In this approach, children rely on their general cognitive mechanisms to learn language. It should be noted that this process is performed not by specific language mechanisms with language learning tools but by general brain processes. Although the child is not born with a bias for grammar patterns such as universal grammar, the brain is organized and works in ways that enable language learning associations. Innsatists believe that the brain is designed to learn and process language, while interactionists believe that learning and using language is because humans have large, complex brains. In addition, interactionists see the child as a contributing member of the language learning process. The child and the language environment form a dynamic relationship. The child gives the parents clues to provide the appropriate language he or she needs to learn the language. This child-adapted speech,

which differs from other adult speech, is called child-centered speech (Owens, 2015).

According to social interactionist theory, although biological and cognitive processes are necessary for language development, they are not sufficient. Language development must occur in the context of meaningful social interactions (Harley, 2014). Social interaction approaches to language learning emphasize the child's environment, social instincts, and functional needs, and his or her relationship with caregiver. Social interactors do not necessarily deny the existence of the innate capacity bestowed on language, but in their view neither genetic factors (assumed to exist) alone are sufficient to ensure language development, nor mere exposure to language alone.

There is evidence that when the main source of language is television, children do not learn the language very well and do not improve with the language they hear, they make little progress because television does not interact with them. This is seen in a child with deaf parents who had only heard the language on television until the age of three. He had learned to use words, but his production and grammar were very poor (Lund, 2014).

A key idea in the theory of social interaction is the area adjacent to growth. According to Vygotsky, a "zone of proximal development" is the distance between a child's actual growth level (determined by independent problem-solving) and his or her potential growth level, which is determined by problem-solving under the guidance of a senior or with the cooperation of more capable peers. In other words, the "zone of proximal development" is the psychological distance between what a child can do on a cognitive task with adult help, but cannot alone (Brooks & Kempe, 2014). According to Vygotsky, two identical intelligent children may grow up in an adjacent area, and one of them may be more able to learn new concepts that are beyond his knowledge (Pishghadam & Tabatabaeyan, 2013).

To help the child cross the area from where they are to where they can be, Vygotsky suggested Scaffolding. In Vygotsky's view, like scaffolding in construction When a building is under renovation, educators must provide cognitively supported scaffolding and gradually remove it to help the child access the area adjacent to their development (Andrews, 2005). According to this, the child is able to enter the area adjacent to the next development as a result of communication interaction with his caregivers who support him for the step-by-step learning process (Field, 2004), the area adjacent to the development is sometimes used in learning the first language to Point out from the adult input that step by step provides the infant with the materials on which the statements are made.

Choosing a goal within the child's basic knowledge base is a waste of the child's time and teaching what he or she already knows. In this situation, the child is not challenged to absorb new knowledge and only proves what he has learned so far. It is also important to choose goals for the child that do not go beyond the area adjacent to his development. If the goal is too high for his or her current knowledge base, the child will not be able to learn it effectively and may not learn it at all (Paul & Norbury, 2012). Therefore, for effective learning, the educator must aim to support an area that goes exactly beyond the skills the child has already mastered. This requires the educator to have several important characteristics, sensitivity to the current state of the child's development, knowledge of the next step of development, knowledge of the child's daily experiences, interests, abilities and motivations, and a range of effective learning strategies to help acquisition (Brown & Nott, 2005)

Brunner, another theorist of language learning based on social interactions, has emphasized the dual importance of mother-child learning. For example, processes such as mutual gaze and shared attention to objects are important in enabling the child to discover word references. Bruner suggested some of these social skills in the way they are used to learn a language. They may be inherent. He stressed the importance of social status in language learning. In many ways, his view is similar to that of the Swiss psychologist Piaget, but Bruner places more emphasis on social development than on cognitive development. Accordingly, although biological and cognitive processes are necessary for language development, they are not sufficient and language development should occur in the context of meaningful social interactions with the language learning support system (Harley, 2014). Two important approaches are interactionism, constructivism and emergentism (Owens, 2015).

Constructivism

Constructivism based on Piaget's cognitive development was first proposed as a developmental perspective (Hoff, 2013) and has two branches: cognitive and social (Tavakoli, 2013). In this approach, language (with any form of knowledge) is constructed using the child-given mental equipment of the child and is used based on the information provided by the environment (Hoff, 2013). According to this theory of language learning theory, linguistic knowledge is gradually gathered from the patterns observed in linguistic data (Brooks & Kempe, 2014).

In the hegemonic view, the child learns linguistic knowledge from within the environment to which he is exposed. For this reason, this approach is sometimes labeled as interactionism. Constructivists, like innatists, are interested in the structure of language, but have less theoretical commitment to the form of language and the age of language learning. In their view, children understand language structures and accept that they have sufficient information about language structures (Owens, 2015). Piaget considered the human child and his brain as an active and constructive factor that proceeds slowly and bit by bit in its constant start-up (Hoff, 2013). He believes that the cognitive and perceptual development of the individual leads to the development of language, not vice versa, in the sense that man must be able to think and form concepts in order to develop language (Johnson & Johnson, 2005). Piaget considered language as a cognitive process like other cognitive processes and its development depended on the development of general cognition. In his view, cognitive structures are not intrinsic but may arise from intrinsic traits (Harley, 2014).

Chomsky, on the other hand, saw the mind as a set of pre-programmed units, each of which was first equipped to detect the complete components of the rules and needed only the slightest environmental spark to represent intelligence products (Hoff, 2013). According to Chomsky, universal grammar is complete and exists in the mind of

every human being before the arrival of any linguistic data, and is in fact a precondition for the military construction of such data. In this view, the rules and structures of language do not precede examples (raw data), but the rules and structures arise from the simple growth of mental processes that are exposed to complex and massive environmental input (Cobb, 2006).

Constructivists accept that language learning requires learning linguistic structures from within. Their approach is a foundation-based approach that sees language as composed of symbolic structures or units that link form and meaning. The central belief is that the structure of language emerges from the use of language. The functions of language as a social tool are at the center of growth. Language structures are aimless and irrelevant. Against the rules of language that are reproductive / innate and are known as algebraic methods for combining words and constructing words, the linguistic rules of constructivists are considered meaningful linguistic symbols. In other words, these patterns are meaningful units of communication, not just its rules (Owens, 2015).

Vygotsky and Social Learning

Vygotsky (1966) concentrates on the significance of the social environment for cognitive development, including the development of language. Vygotsky (1966) suggested the notion of the Zone of Proximal Development (ZPD). This is the idea that, at any given stage in a child's development, there some things that the child can achieve without help, and there are other things that they cannot accomplish at all. However, the 'zone' of things that the child cannot accomplish alone, but can accomplish if helped by a more knowledgeable person. In terms of language, for example, a child at the one-word stage is capable, unaided, of producing single-word utterances; they are not capable, in any way, of producing long stretches of coherent, cohesive language; but with appropriate support and assistance from an adult speaker, they can participate in a structured conversational interaction. So, for a child at this stage, such an interaction is within the ZPD. Significantly, it is by this very process of participating in interactions that they are not capable of coping with alone that a child becomes capable of managing such interactions on their own. Another important aspect of Vygotsky's view of language is that it implies that aspects of a child's cognitive development – including language – initially take place not within the child's mind, but within the child's social context. Only later do they take root within the child's mind. As Vygotsky (1966) points out that 'any function in the child's cultural development appears on the stage twice, on two planes, first on the social plane and then on the psychological. In terms of language, this means that the crucial site of activity for language acquisition is not the brain of the child – as proposed by nativist theories such as Chomsky's – but rather the interaction between children and their caregivers. Language within the mind is a later phenomenon: in fact, for Vygotsky, it is the process of internalizing the originally-external language skills that gives rise to our ability to think-in-words.

3- Evolutionary Psychology

Darwin's (1859/1958) theory of evolution, as presented in the Origin of Species, is probably the best and most enduring general explanation we have of the human condition and our adaptation to the world. The basic principles behind Darwin's theory are relatively simple. First, there are many more members of a species born in each generation than will survive, termed super fecundity. Second, all members (at least in sexually reproducing species) have different combinations of traits; that is, there is variation in physical and behavioral characteristics among individuals within a species. Third, this variation is heritable. Fourth, characteristics that result in an individual surviving and reproducing tend to be selected as a result of an inter-action between individuals and their environment and are thus passed down (via one's genes) to future generations, whereas the traits of non survivors are not. That is, genetically based variations in physical or psychological features of an individual interact with the environment, and, over many generations, these features tend to change in frequency, resulting, eventually, in species-wide traits in the population as a whole. Thus, through the process of natural selection, adaptive changes in individuals, and eventually species, arise. Darwin referred to the reproductive success of individuals as reflecting their reproductive fitness, which basically refers to the likelihood that an individual will become a parent and a grandparent. Contemporary evolutionary theorists, taking advantage of scientific advances that have occurred since Darwin's time (particularly in genetics), use the concept of inclusive fitness (Hamilton, 1964).

4- Modularity

On the spectrum of modularity, there are competing positions from one pole to another. At one extreme, there is massive modularity hypothesis which has been proposed by evolutionary psychologists. Based on this hypothesis, our cognitive architecture including that part that subserves "central processing" – responsible for reasoning, conceptualization, belief forming, decision making, and inference drawing (Pinker, 1997; Barret, 2005).

At the other end of the spectrum of modularity, we come to Fodor's position. In his book "The Modularity of Mind" (1983), he insists that much of our cognition is subserved by non-modular systems. In this minimal peripheral-system of modularity, only input and output of cognition including audition, vision, face recognition, language processing, and various motor control systems are plausible candidates for modularity. By contrast, the central systems which are responsible for higher cognitive processes such as reasoning, problem-solving etc. are likely to be non-modular. By the same token, there is a variety of modularity which claims that computational mechanism is not the only possible kind of innate, domain-specific psychological structure. Another possibility is that humans possess innate, domain specific bodies of knowledge. It is also claimed that human reasoning is guided by collection of innate domain-specific system of knowledge such as that of language, that of physical objects, and of numbers. Such types of knowledge are operated on by domain-general computation devices. Such a position, termed Library Model of Cognition (LMC) by Samuels (1998), holds that the computational mechanisms which subserve "central processes" are "domain-general."

In addition to the mentioned position, mind is wholly or partly modular for Chomsky, and language growth is controlled by specific, innate modular faculty distinct from that part of the mind responsible for general

cognitive processing. This language faculty devoting to the acquisition of natural language, in turn, consists of specialized modules for each language subtasks such as syntactic processing, lexical processing etc. (Chomsky, 1980; Fodor, 1983).

5- Conclusion

Rationalists like Plato and Descartes think that certain fundamental ideas are innate and exist from birth. Empiricists such as John Locke and David Hume reject this inherentness and believe that all knowledge can be learned through experience. The seventeenth-century empiricist philosopher Locke assumed that the mind of a child at birth is a whiteboard on which emotions are written and future behavior is determined (Johnson & Johnson, 2005). Locke's view has contributed to the long-standing debate over the role of nature (innate processes) versus upbringing (environment) in how children learn everything, including their natural language. An ongoing debate among proponents of various learning theories (Johnson & Johnson, 2005).

American behaviorist psychologist Skinner has proposed language learning as a process of imitation and reinforcement, and behaviorist theory of learning based on the process of actor conditioning (language as behavior). This theory states that behavior change occurs based on events that result in behavioral actions. Positive reinforcement increases the likelihood of recurrence of behavior and punishment reduces the likelihood of recurrence. In terms of language development, a child who looks at his father and says "Daddy" may be rewarded with a positive comment and perhaps a hug. However, if the same child says "Mama" while looking at his father, he may be corrected or possibly reprimanded: "No, no, no, I'm the father." Behaviorists think that imitation plays an important role in children's language learning. Thus, the behaviorist view, between the two natures of nature versus the development of language, considers the role of upbringing. This hypothesis has been criticized because it does not explain some of the facts of language development, such as children's ability to express or comprehend unique sentences that the child has never heard before (Johnson & Johnson, 2005)| .

Some empiricists, such as Piaget, see language development as the result of a child's attempt to understand the world and draw meaningful patterns about all aspects of the child's environment, not just language.

According to Piaget, language is the product of the development of public intelligence, not the separate capacity of language processing (Peccei, 2006). In contrast to empiricism (Dictionary of Language and Linguistics, 2006) and the external mechanism of language learning (Knoors & Marschark, 2014), Chomsky's innatist view of language is placed in the camp of rationalists (Harley, 2014). For proponents of institutionalism, there are three salient facts: children learn language 1) quickly, 2) effortlessly, and 3) without direct instruction (Hoff, 2013). According to Chomsky's subjectivist approach to learning, which emphasizes the development of language ability versus language action (Dictionary of Language and Linguistics, 2006), the ability to learn language is inherent in human behavior, and children (unless there is any neurodegenerative deficiency with cognitive function). They are born automatically ready to learn a language. Children have language learning tools that enable them to process language (Johnson & Johnson, 2005) and allow the child to construct grammar from a set of possible options (Graffi, 2006) and produce sentences according to adult language (Johnson & Johnson, 2005.(

Chomsky's innatist theory of language is based on the argument that because language is unique to man, a playful woman should be appointed. In addition, due to the excessive complexity of language, the development of language skills for five-year-olds is possible only if they bring with them the innate knowledge of language learning. In other words, children are made to learn a language, and the specific language skills they are exposed to are gradually developed. According to this theory, the role of the environment in language learning is important and mainly activates the inherent mechanism of language (Johnson & Johnson, 2005). According to Chomsky, language is not learned, but linguistic knowledge is the mental state of the unconscious that develops in the child's mind. According to Chomsky, language learning is a term that is inappropriate in the discussion of Chomsky's view because it is inherently a language that is not learned) is not something that the child does, but something that happens in the child. In this view, it is the mastery of the biological process that underpins the naturalistic view of Chomsky.

In this view, language belongs to the world, not culture. Central to Chomsky's view of naturalism is the claim that man is born with linguistic knowledge and that there is an inherent cognitive content that is purely linguistic (the hypothesis of being inherent) (Carr, 2010).

The third theory that seems to be between the two theories of behaviorism and innatism is cognitive theory. Cognitive approaches to language learning are closely related to general cognition and cognitive development (Tavakoli, 2013) and are closely related to brain development and function. There are certain areas in the human brain that are involved in language processing. Actual processing performance depends on the structure and function of these areas and the relationships between them (Knoors & Marschark, 2014). Cognitive theorists such as Jerome Bruner accept the role of innate knowledge in language learning, but believe that innate knowledge as a whole is cognitive rather than purely linguistic. They believe that language development is just a cognitive developmental ability. Proponents of cognitive theory of the environment consider it an important element in children's language learning, and do not consider children to be passive recipients (ie, whiteboards). Instead, they believe that there is a necessary interaction between the intrinsic cognitive structures and the linguistic and non-linguistic environment of children (Johnson & Johnson, 2005) .

According to psychologists such as Bruner and Piaget, the mental talent of language, although a real piece, is by no means a separate part of our biological inheritance, but merely another manifestation of our all-purpose cognitive abilities (Trask, 2007).

By modifying one or more of the three theories described, other theories of language development were presented. For example, the Russian psychologist Vygotsky proposed a slightly different version of cognitive theory. According to him, although children have an innate cognitive basis, real learning begins when they want to express functions. Thus, the growth of language is to express functions (for example, "Where is mom?" Or "More milk"). This goal guides what children learn. In essence, language development is due to social needs that require individuals to communicate. Similarly, social communication theorists believe that children's early social and communication interactions are important in language learning. Forms and rules of young children's language learning grow outside of their interactions with parents. In this theory, parents and children play very active roles in language development.

Finally, according to the theory of connectionism, language knowledge includes links and communication networks instead of rules. This theory, which is based on research on artificial intelligence (Johnson & Johnson, 2005) and a non-linguistic approach to the study of language learning and in fact computer modeling of constructivists and newcomers' view of language learning (Tavakoli, 2013), often with two names of distributed processing parallel to artificial neural networks are equated (Brooks & Kempe, 2014) Connectionism likens the brain to a computer containing neural networks: interconnected clusters of links between information nodes. These bonds become strong and weak through activation and deactivation, respectively (Tavakoli, 2013). Connectors believe that knowledge acquisition requires changing and modulating weight links between neuronal stratified populations. This theory claims that children learn language even without understanding the rules or without rules (Johnson & Johnson, 2005). In other words, in this view, learning occurs instead of constructing abstract rules based on association (Tavakoli, 2013). Connective theory is in its infancy and needs to be widely accepted (Johnson & Johnson, 2005)

Theories are not true, and although much research has been done, it is still unclear exactly how children succeed in a remarkable masterpiece of language learning. Some attempts to link linguistic and cognitive development using Piaget steps have been unsuccessful. Major advances have been made in understanding linguistic and cognitive development, but these advances have not shown a close relationship. It seems logical that a combination of imitation skills, innate language learning tools, cognitive development, and social communication interactions contribute to language development (Johnson & Johnson, 2005).

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