A THEORETICAL ANALYSIS OF THE LATEST RESEARCH ON LANGUAGE ACQUISITION AND THE IMPLICATIONS FOR LANGUAGE LEARNING

ANTÓNIO SIMÕES
FAIRFIELD UNIVERSITY

Introduction

It is generally implied that learning a second language is directly related to sound pedagogy and language production. These assumptions may help the language teacher develop materials that may assist the learner to better understand a second language using comprehensible input as the major emphasis on the teaching practice. (Krashen, 1992)

As for the linguist, the process of learning a second language is related to the domain of language acquisition, a concept in many ways can be separated from pedagogy and classroom teaching. In other words, language learning is an outcome while language acquisition is the process on how language is acquired.

There are many starting points where one can begin to explore the complexities of learning a second language. The question is: Is learning a second language just knowing how to produce the language or is it more complex in thinking, imagining, understanding the imbedded meaning of a culture?

Neurological-Genetic Theories on Language Acquisition

One can begin to comprehend how a second language is developed and how it is produced by beginning this inquiry from a neurological-genetic process.

• **Dean Emeritus and Adjunct Professor, Fairfield University, 2015; Director of Educational Sciences, Universidade Aberta, Lisbon, Portugal, 1997-1999; Director of Bilingual Education, New York University, 1980-1991; Fulbright Scholar, University of Lisbon, January 1, 1991-April, 1991; Director of Bilingual Education, Boston University, 1975-1980; Director of the Bilingual Education Training Center and Associate Professor of Education, 1971-1975 Hunter College; Assistant Dean of General Studies and Assistant Professor of Education, 1971; Ed.D. in Curriculum and Teaching, Columbia University. Over 100 Publications, in both Professional Journals, Books and Newspapers, Editor of the Bilingual Child, 1976, Past President of NACUBE, National Association of Colleges and Universities for Bilingual Education.**

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Language Acquisition Device

Chomsky (1965) suggests that language acquisition is a natural universal process. It is common to all cultures and all languages that we acquire language the same way. Language structures itself into logical sequences or what is known as universal grammar. He labeled this process as the language acquisition device (LAD).

Assuming that this theoretical inference is correct that universal grammar takes place, the INPUT or the language context is semantic which is loaded with cultural meanings. The LAD is biologically "neutral" but what is NOT neutral are the culturally imbedded meanings that are incorporated into the device. They are the semantic cues when one inputs sounds into meaning.

At birth children begin to universally acquire language and the "wiring" takes place without any effort. The LAD is neurologically set up to acquire language from any part of the globe.

The School of Genetic Epistemology

Jean Piaget (1923,2002) explored the language of the child by assuming that all children have a natural biological sequence in acquiring a language. As a genetic epistemologist, he explored how children developed language in terms of one's age. He identified four stages of development that showed that a child would go through regardless of the cultural environment.

The stages are the following:

<u>Sensorimotor Stage 0- 2 Years</u>

This stage is entirely concrete. At this stage children start to acquire language. Things are real with no abstraction. The identification of objects are "here and now. Time is in the present.

<u>Preoperational Stage 2-7 Years</u>

Children still concentrate on the present, but now can talk of the past and the future. They can "see" and "feel" the "other" world. Language now functions from a different perspective. It is the beginning of abstract

thought.

Concrete Operational Stage 7-11

As this stage, children can operationalize the concrete. They can begin to understand why 2+2=4 or why a heavy black bowling ball is black, heavy, round and it is used for bowling. Children can now put things together and understand what are the uses of certain objects. In other, words they can operationalize things and concepts.

Formal Operational Stage 11 + Years

At this stage, children are now young adolescents and are now able to abstract concepts, create new ideas or think about time and space.
For the case of bilingualism, the adolescent is able to distinguish one language from the other.

As with the language acquisition device, since birth we are neurologically programmed the same way. The stages of genetic epistemology give us a way to produce and interpret language. With the LAD and the Piaget stages in play, we can understand that some aspects of language acquisition are biologically fixed. However, when we enter the domain of the social sciences, the developmental stages may play an important part of acquiring cultural and linguistic meaning. That is, the LAD plus a developmental stage illustrates that language acquisition and language learning is an ongoing process and is at specific stages of growth.

Multiple Intelligences

Another scientific path of investigation are the domains of multiple intelligences (Gardner, 1985). Akin to the LAD and the school of genetic epistemology, Gardner postulated that intelligence may also be neurologically programmed and some of us may have more strengths (intelligence) in one area while others may have more strengths in other areas. Gardner claimed that what we interpret and learn in the environment are not accomplished the same way.

We may note that even if we have a language acquisition device and that we follow a neurologically prescribed path, in the intelligence domain we neurologically "wired" differently. Some of us may have a linguistic intelligence profile while others may not.

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The following are the intelligence categories. What is important is that although we are focusing on language acquisition, ALL of the categories are integrated into some sort of expression or what we call "language."

The categories are the following:

Visual- Spatial

In the visual-spatial domain thinking takes place in a physical-spatial environment.

Bodily-kinesthetic

Communicating is through body language, such as dancing, sports or other activities that deal with body movements.

Musical

The musical domain is where we are more perceptive to sound, rhythm and music.

Interpersonal

In the interpersonal, we are outgoing and love to communicate with our peers.

Intrapersonal

In some ways we are the opposite of the interpersonal. We may be the quiet and have very few friends. The intrapersonal behavior is sometimes in tune with inner feelings and has confidence and opinions. One may need individual space where privacy might be more important than working collective in a group project.

Linguistic

On linguistic intelligence the use of language such as the use of words, writing stories, poetry, able with ease to develop a second language or other tasks that we note as language production become our strengths. A note of caution must be cited. Just because a one is learning a second language and may eventual become bilingual, does NOT mean that the child is linguistically intelligent.

Logical-Mathematical

These are our "conceptual" students. They may be the divergent thinkers where they go from the general to the specific.

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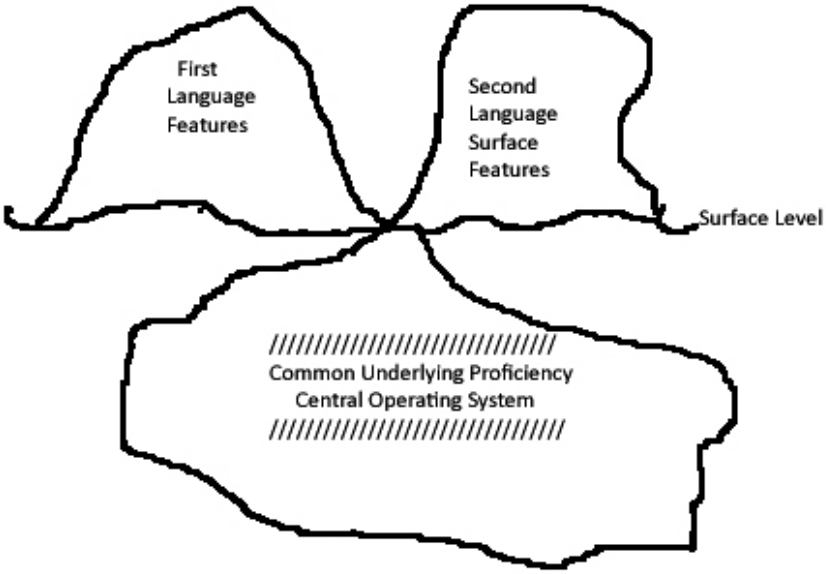
Another theoretical assumption in the physical sciences is what Cummins (1980) identifies as the iceberg theory.

We may note below that language production can be measured as observable and concrete. However, it does not cover the underlying principles of neurological development or schematizing the brain structure into specific linguistic paths. Language proficiency is just not surface production in either L1 or L2 but has deep roots in language use and language production.

The iceberg theory can give us an image of the complexities of language acquisition and language learning.



The iceberg theory gives us a visual representation of both surface level outcomes, the language we measure, and the complexities of acquiring a language. With future technology, we will be able to understand relationships of brain functions as these relationships relate to language acquisition and language learning

There are other domains to identify some of the neurological conditions that structure language acquisition. They are "systems" that are biologically programmed for all human

beings. Now the linguist must borrow from the social sciences to better understand language learning and language production.

The Social Sciences, Pedagogical Approaches to Second Language Acquisition

In addition to scientific approaches to language acquisition, the literature in the social sciences on second language acquisition and second language acquisition is rich indeed.

For our purposes, I will highlight some of the general theories in the field.

BICS-CALP - LANGUAGE PRODUCTION AND ACADEMIC SUCCESS

Cummins, (1991b) developed a way to understand what we mean by academic success for the second language learner. His theory on BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Proficiency) is extremely important to understand language production, language comprehension and academic success.

In the case of BICS, the process from the first language (L1) to the second language (L2) varies from individual to individual depending on the linguistic intelligence and the proficiency of the first language. The rule of thumb is that it takes usually one to two years for an individual to speak and produce meaning in the second language, or what we know as language production. Speaking and communicating in a second language does NOT necessary mean that the individual can grasp abstract meanings in the second language or some of the inferences in L2, such as joke telling or abstract thinking. Playground language is not academic language. Many times educators make the critical mistake in placing a child in a monolingual classroom after a year or two not understanding the difference between BICS and CALP. Teachers may say, "Well Johnny speaks English quite well and should be integrated with the mainstream classroom." In many instances this assumption may lead to academic failure.

In the case of CALP, the individual may use language in an academic environment. One is able to abstract, think critically, and use L1 and L2 interdependently. This process usually takes several years or two to be fully functionable. Collier (1987) postulated that the process of CALP may take 7 or more years to establish a working proficiency in the academic area. In

CALP, one must know how to use critical thinking, understanding abstract concepts or be embedded in the second language.

One of many reasons why the time varies of each student to acquire CALP in the second language is what is known in the field as underlying proficiency (Cummins, 1982) or knowledge transfer (Simões, 1983). That is, what an individual knows in L1 will be transferred to L2.

When one relates the issue of the relationship of L1 to L2 to developmental psychology, especially to Piaget's developmental theories and the language acquisition device, the interdependence hypotheses becomes critical. Cummins (1991a). This may be reasonable until one begins to look at what stage this occurs and how complex it is at specific developmental stages. As noted in the scientific section of this article, the LAD is a natural device where infants acquire language without effort and will naturally structure grammar. We may note that an infant in a bilingual situation will learn language in the singular form. That is the LAD structures language without any comparisons between L1 and L2. L1 and L2 is one language and are learned that way.

The concrete operation stage, however, has a different development process in learning a language. Although the LAD is a systematic biological or neurological function, the young child begins to think in a comparative mode. S/he begins to understand the world. In many instances, learning language is still a "natural" function, but it is a function of thinking and comparisons. This is where the interdependence hypothesis is critical for learning a second language. Learning L2 may not have an equivalent meaning in L1 where context reduced situations come into play.

As for the formal operational stage, L1 is more developed and to enter L2 may become easier because one may have context embedded situations in both languages. Still, what gets more complicated are other issues that may be part of the student's cognitive abilities in the first language and the transfer of knowledge to the second language (Simões, 1982).

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As Simões infers:

1. **Language production, language use, language proficiency, bilingualism are not neutral social acts. Since language development and language acquisition are a social construction of reality, first and second language acquisition must be analyze from different paradigms in the social sciences.**
2. **The relationship between the first and second language in language production, use, and proficiency may be more powerful than we realize. A political, social, and linguistic correspondence may take place while one is learning a new or second language.**
3. **Language production, language use, and proficiency are not acts that are outside of what society values. The use of language at home, in a social gathering, or in school reflects what society values and what society rewards within the political and educational realm.**
4. **Language production, use, and proficiency as these phenomena relate to first and second language acquisition, can be used synonymously. Although language production may be viewed as a domain where language can be measured or tested, and although language use may be a domain for a social context, and although language proficiency has its own literature in first and second language acquisition and bilingualism, for our purposes all of these categories will be known as language development. Language development is a result of the distribution of knowledge, and consequently, language development is a socially constructed reality.**

Social construction of any language has its own cues, semantic system and understanding of realty (Berger and Luckmann, 1967).

The phenomenon of Cummins' (1980,1981) iceberg theory is an explanation of language use and language production. Simões, (1983), 1984) looked at the phenomena of image production and what this means in interpreting and understanding our environment. In case of possessing more than one language and culture, the concept of the environment may

become plural. For example, growing up in the semi-tropical or tropical region, the concept of snow is really an abstract image. Through photographs and other media, one may "know" that snow is white and all snow must be the same. In contrast to a New Englander, snow is wet, dry, fluffy, heavy, has different kinds of flakes, etc. One can note the image produced of snow is very different. What is interesting, let's say, is an individual from a warmer climate moves to New England and experiences the first snowfall. The first experience is heavy wet snow. S/he may reflect and think "well this is snow." The fowling week there is another snowstorm and now it is the light, flaky snow. Now the image has changed. S/he can produce two varieties of snow. Still, until s/he experiences more than these two varieties, which may take several years, the concept of snow, has a limited image production.

Comprehensible input is another essential component to learn a second language. According to Krashen (1992), the only way we can acquire language is by receiving comprehensible input. That is, we have to receive input that is just beyond our competence but not beyond our understanding. However, this hypothesis was later modified so that comprehensible input was a necessary but not sufficient condition for acquisition. Learners have to have the right environment and circumstances to allow comprehensible input to work. A learner's affective filter has to be low. They have to be free of stress and motivated to learn. http://bogglesworldesl.com/glossary/inputhypothesis.htm

What is important is to have a successful teaching lesson is to understand the affective filter. As stated in the literature:

> This is an imaginary wall that is placed between a learner and language input. If the filter is on, the learner is blocking out input. The filter turns on when anxiety is high, self-esteem is low, or motivation is low. Hence, low anxiety classes are better for language acquisition. Another implication is that too much correction will also raise the affective filter as self-esteem In using the language drops.

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http://bogglesworldesl.com/glossary/affectivefilter.htm

Language Learning, Language Transfer and Pedagogical Approaches Can be Investigated in Other Areas Out of the Hard Sciences

In the domain of philosophy many ideas can be borrowed to develop some interesting paths of investigation for the language learner.

One may begin with Gaston Bachelard,(1958). He explored knowledge through images of a house. His most well known text in language studies in his *Poetics Of Space* . His exploration of the mind leaves the reader that we have "spaces" that make up our behavior of the world. Hence, the language learner has individual experiences in the first language, spaces in the mind, but also is tied to a particular culture and way of life. When entering a second language these "spaces" are sometimes new with culturally embedded meanings. Sometimes L1 and its meaning may not have a direct transfer the L2.

Another philosopher could be the writings of Ludwig Wittgenstein (1953). He explored the relationship between word and reality. He sometimes questioned that language actually could impede reality by defining reality in its own way. We are grounded into our own reality and our view of the world is socially constructed.

Through the years the term "spirit" has been missing from the educational literature, Although its origins is from theology, it has a strong impact on learning and positive self-esteem. The following quotation is powerful and reveals the human potential, who we are and what we are capable of doing and producing. If we create the conditions in a classroom to open up the spirit the sky is the limit. What is so simple, but at the same time highly complex, is to unlock a new world for the second language learner with the least amount of dissonance. As Buber suggests (1970):

> **The spirit in its human manifestation is man's response to is You. Man speaks in many tongues-tongues of language, of art, of action - but the spirit is one; it**

> **is response to the You that appears from the mystery and addresses us from the mystery. Spirit is word. And even as verbal speech may become first word in the brain of man and then become sound in his throat, although both are merely refractions of the true event because in truth language does not reside in man but man stands in language speaks out of it - so it is with all words, all spirit. Spirit is not the I but between the I and You.**

This idea is universal and powerful to unlock the child's mind. Due to the fact we are dealing with a child's new world, a world that in many ways may be spiritually and cognitively different in a new culture, for the second language learner it becomes more complex Hence, the I (the teacher, the environment, the culture, etc) and the YOU (the student, the deep meaning one's beliefs and culture, the very essence of what reality is in a specific culture) brings on many challenges for the teacher and a positive, healthy classroom environment. It is the YOU that look-at-the-world. It is the YOU that feels-the-world. It is the YOU that naturally-learns-when-the-environment-is-supportive-and-real for the student. It is the YOU that-is creative. It is the YOU that is YOU.

Other Issues that May Affect the Second Language Learner

A teacher must be grounded in general educational theory and in the latest research in language education. S/he must have a deep-rooted knowledge of second language theory and know how to apply second language pedagogy to a classroom that is comprehensible and culturally relevant. In an ideal situation, the teacher should be proficient in the language of the children that adds another layer of communication with the students.

Simões and Davila (1994) suggested that the evaluation of language proficiency and identifying education issues must first be evaluated in the FIRST language. Why is this so? Evaluating a student in a second language may give faulty information about the student's ability to function in an academic environment. Just evaluating a student in a second language does not give the information about special needs, strengths or academic weaknesses.

There is also the question regarding when a student has CALP and is able to perform in the

second language. You may recall BICS is oral production and CALP is a function to participate in an academic environment. We have noted that age and learning a second language has several variables that affect the second language learner. As reported by Collier (1987), the following shows how complex academic success may be in the second language, especially when it comes to age.

The study analyzed the length of time required for 1,548 advantaged limited English Proficient (LEP) students to become proficient in English for academic purposes while receiving instruction in English in all subject areas. Variables included were age on arrival, English proficiency level upon arrival, basic literacy and math skills in the native language upon arrival, and number of years of schooling in English. Second language and content-area achievement were measured by students' performance on the Science Research Associates tests in reading, language arts, mathematics, science, and social studies. The results indicate that LEP students who entered the ESL program at ages 8–11 were the fastest achievers, requiring 2–5 years to reach the 50th percentile on national norms in all the subject areas tested. LEP students who entered the program at ages 5–7 were 1–3 years behind the performance level of their LEP peers who entered the program at ages 8–11, when both groups had the same length of residence.

Arrivals at ages 12–15 experienced the greatest difficulty and were projected to require as much as 6–8 years to reach grade-level norms in academic achievement when schooled all in the second language. Whereas some groups may reach proficiency in some subjects in as little as 2 years, it is projected that at least 4–8 years may be required for all ages of LEP students to reach national grade-level norms of native speakers in all subject areas of language and academic achievement, as measured on standardized tests.

Semantic Satiation - Compound and Coordinate Bilingualism

One theme that is rarely discussed in the literature is what is known as semantic satiation (Jakobovits & Lambert, 1961). The discussion on semantic satiation is based of the theory of compound and coordinate bilingualism originally introduced by Weinreich (1953). He explored

languages on contact and how sometimes two different linguistic systems fused into one language.

Due to the fact that a child may be "bilingual," the two linguistic systems may not be standard dialects. This phenomenon has many causes, and if the teachers suspects that a child is using let's say Spanish-American or Portuguese-American speech, the educational planning for comprehensible input may take different forms.

Age also must be taken into consideration when exploring the issue of semantic satiation. For example the use of code switching or language alternation as part of his/her language may be done for effect or communication. Still a code switch or language alternation is not considered semantic satiation because the user of the language understands BOTH meanings of the switch. Many code switchers are functional in both languages.

In a compound situation, language production is a mixture or a fusion of two languages. Many times the user is not conscious of the use of the language and assumes that the language use is a standard language. What is important is that some children are raised in a compound situation and when they enter school, they may be labeled as "bilingual" but technically they are using one semantic system for communication. An example is now in order.

In the English language when one wants to call back one will say, "I will call you back." Some Portuguese-American speakers who use a Portuguese-English situation as a medium of communication will say in Portuguese "Eu chamo-te para trás." This concept doe not exist in standard Portuguese.

Morales (2002) writes about Latino identity in America where he also legitimates Spanish-American speech as a legitimate form of communication among certain Spanish-American communities. Penalosa (1975) legitimates Chicano speech as a way that this speech community has its own form of communication.

Systems-Context Approach to a Problem or Question

Before I conclude this complex exploration of language acquisition and language learning, the following schema may help us to better understand how language is acquired. It is called

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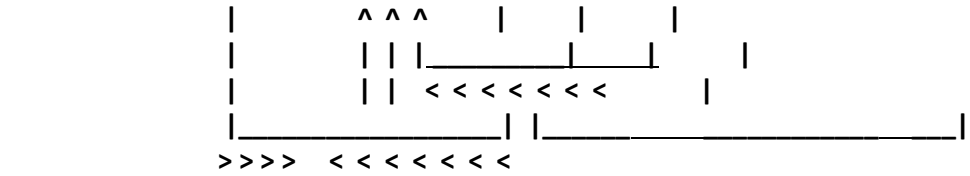
"systems-context approach to language acquisition. Using the chart of systems context (Simões), 1979, we will explore various paradigms for consideration.

Figure One
Systems-Context Approach

Systems	Context	Pedagogical	Ideological	Existential
*School of Genetic Epistemology *Freud, Rogers, etc. *Skinner *Cognitive Styles *Paradigms *Math, Science, etc.	*Cultural variables that affect the system	*Classroom, management, teaching strategies	*General and specific beliefs on how children should learn	The poetic form that deals with affective education	affective



As we can see, the systems-context chart gives us a way to develop a better understanding how systems are affected by various contexts. That is, the category of systems, pedagogical, ideological and existential; all lead to CONTEXT.

We can assume that all human phenomena, being it physical or cultural, have its own logic within a specific contextual paradigm. For example, one could use operant conditioning in behavioral psychology as system to learn a second language. Under this system of operant conditioning, human behavior is formed by negative or positive reinforcement. (MacLoed, 2007, Skinner, 1938). Under the system of operant conditioning, the context are the cultural variables that will react to the reinforces, but there may be in three other categories that will give input to the system-context paradigm.

Again, what is critical in this paradigm is the idea on SYSTEMS-CONTEXT. That is have the same SYSTEM of learning, interpreting the environment, learning a language, reacting to

danger, eating specific foods, etc. Within the system, there is a CONTEXT. The context "enters" the system to function properly. What is important is that assuming the system is the same for human functioning, context becomes the critical focus to make the system functional.

Conclusion

It is important to distinguish between language acquisition and language learning. The research suggests that learning a second language is a complex process. Some individuals might have linguistic intelligence while others might have spatial intelligence. For the teacher to assume that methodology alone will insure successful language teaching is a false notion. In the physical sciences, we are now on the threshold with new technology that will unlock many of the mysteries of neurological connections and language acquisition.

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