Short Communication

What is the Role and Nature of Language and Language Development?

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Abstract

In this paper, the role and nature of language and language development will be discussed. Research and theory in second language acquisition has demonstrated that (i) language is an abstract, implicit and complex system. Input (ii) plays a key role in language development; despite the fact that some knowledge of language is innate (iii). Overall, language development (iv) is ordered and stage-like and instruction (v) has a limited role. Theoretical and pedagogical implications will be highlighted.

Keywords: *Input, Instruction, Language, Mental Representation, Language Development*

Introduction

Second Language Acquisition is complex, unconscious and implicit and consists of the interaction of several processes and mechanisms in the mind/brain of the learner. Research in second language acquisition has overall investigated how people process language, how they come to develop a language system, and how they can make use of that system for speech production. In this short-paper, some of the key known facts about the role and nature of language and language development will be highlighted: (i) language is an abstract, implicit and complex system; (ii) input plays a key role in language development; (iii) some knowledge of language is innate; (iv) language development is ordered and stage-like; (v) instruction has a limited role in language development.

Language is an Abstract, Implicit and Complex System

Each human being, no matter whether it is a first, second or third language, creates an internal language system (mental representation) we call language. This abstract and complex system is also implicit as we know we have language in our heads, but we do not really know

what the contents are. Despite the fact that language (mental representation) is internal in our minds/brains, when we speak or communicate we use it, and therefore we might think that language is also something external. However, communication and language are not the same thing. In short, communication is the external use of internal things, and one of those internal things is language.

There is also another distinction to make between language as a mental representation (the internal, abstract and implicit language system) and language as a skill (accuracy and fluency). Skill (DeKeyser, 2015) is the ability to use language in real-time (speaking, writing, listening and reading). It does involve the intersection of accuracy and fluency (speed in using the target language). Language learners acquire skills by participating in skill-based activities. Accuracy refers to how language learners can produce language error-free. Fluency instead refers to how (speed and confidence) language learners can perform an activity. Grammar is not a skill.

Mental representation (VanPatten, 2016) can be described as multi-componential (e.g. lexicon, syntax, phonology, etc.). It is implicit in nature and abstract as its features are difficult to describe with exact words. It does include what it is allowed (e.g. *Do you know how to get to the centre*?) but it does also include what it is not allowed in a specific language (e.g. *Know how to get to the centre?*). Mental representation does not consist of rules (VanPatten, 2010). What every speaker/knower of language creates in the mind/brain is an implicit, abstract representation of language. What we observe as "language" is the result of a complex interaction of principles, constraints, and interfaces that yield utterances/sentences. This abstract representation bears no resemblance to rules. Much of the grammatical information is stored in lexical entries with embedded features.

Mental representation is also characterized by principles that are universal. There principles constraint the development of language. For example, all languages have a basic structural feature called 'phrase'. This basic feature consists of two elements: head; and compliment. Depending on the specific language, we can have 'head first' or 'head final'. English is head first (head + compliment) whereas Japanese is head final (compliment + head) for instance. These abstract notions interact with input language. In addition, language learners possess a complex network of form-meaning-connections which evolve and expands establishing lexical and formal relationships as we expose to more meaningful and comprehensible input.

Input Plays a Key Role in Language Development

Input refers to the language that language learners are exposed to (hear or read) and has a communicative intent. In second language acquisition learners hear or read the language that contains certain linguistic features (e.g. vocabulary, grammar, pronunciation, etc.) and other information about the language. These features make their way into the learner's language system only if they are linked to some kind of meaning and are comprehensible to the learner. Input must be comprehensible as learners must be able to extract the meaning of the message contained in the input. Input is language that learners try to comprehend for the message contained in it. When somebody say 'How older are you?', the listener would focus on what the person would like to know and the response will focus on the meaning contained in what this person is asking ('I am fine thank you, and you?').

To fully understand the nature of input (Gass and Mackey, 2015; Long, 1985) it is also important to clarify what input is not. Input is message-oriented language that learners hear or see. It is not what they produce, as what language learners produce is called output. Another important distinction to make is between input and explicit information. Explicit information (e.g. grammar explanations about the target language, learners are often exposed to in the language classroom or in textbooks) is not input for acquisition. Explicit information is not input for acquisition because in that information provided to language learners there is not an attempt/intention to communicate a message that learners need to attend to.

Input for acquisition is therefore the language that is embedded in a communicative context that learners attend to for its meaning. Language learners acquire language mainly through exposure to comprehensible input, in a similar fashion as they acquire their first language. The input that language learners receive should be simplified with the use of contextual and extra linguistics clues. Language learners should be exposed to comprehensible input and they should be provided with opportunities to focus on meaning rather than grammatical forms.

For the input to be effective and useful for language learners, it must have two main characteristics: (i) it must be comprehensible, and (ii) it must have a communicative intent (Krashen, 1982). The most important thing for language acquisition to happen is that the language learner can easily understand the input (more on chapter four). We need to ensure that language learners are exposed to is clearly and easily understood. Secondly, in order to be effective input must contain a message that learners must attend to. Learners have to be involved in an activity that has a communicative purpose. Features of language make their way to the system if they have been linked to real-world meaning.

Language is a tool for human communication, and the formal features of language—lexical items, morphology, syntax, etc.—all work together to encode meaning. So, as learners work out the meaning of the input they are exposed to, they are also making connections between the meaning of the input and the linguistic form. Several things can facilitate this process. L2 learners benefit from simplified input and modified input. Simplified input is language input that it is less complex so as to be more comprehensible. The language that native speakers (NSs) normally use to talk to young children is generally a simpler language as adults adjust their vocabulary to make the speech easier for the child to understand. In the context of first language acquisition, children are continuously exposed to simplified input that contains a message and must be comprehended (e.g., Are you thirsty? Would you like a drink of milk? Do you like this game?). This kind of child-directed speech makes it easier for children to learn their native language. In addition, the language is highly contextualized within communicative events. What this means is that children at the age of 2, for example, are hearing language that is embedded in concrete here and now situations—even during storytelling when they are looking at pictures.

In second language acquisition, simplified input to language learners consists of a variety of characteristics when compared to native-to-native speech: slower speech rate (and thus clearer articulation), use of high-frequency vocabulary, pausing at appropriate places with pauses often longer and more frequent, rephrasing, and the use of shorter and simpler sentences (Hatch, 1985). The use of shorter sentences, for example, reduces the information-processing burden on the learner. Additional pausing does the same thing: pauses give

learners "processing time" before the next round of information comes in. These modifications result in greater likelihood of comprehension, which in turn facilitates the conditions for acquisition.

Language learners are exposed to vast amount of input, however, not all the input learners are exposed to is actually processed.Input refers to what is available to the learner, and intake is the part of the input actually internalized by the language learner. Intake is the portion of the input that is 'taken in' by the learner. It is often the case that when acquiring another language we are exposed to language that is totally incomprehensible (e.g. an example is sometime the announcements made at train stations. In order for that input to make its way into the language internal system it must first be comprehensible. Despite this important feature, it is not possible for learners to take in all the input they are exposed to as humans have limited capacity to process and store information. There are a number of positions/theoretical views about the fact that for input to be usable for acquisition it must be attended and noticed in some ways.

Language learners attend to or notice input to comprehend a message a form-meaning connection is made. However, only a small proportion of input is processed (intake). Only part of the input learners receive is processed and becomes intake (Corder, 1967). This is mainly due to processing limitations (memory capacity) and processing strategies. A series of processing strategies are used by language learners when they process and filter linguistic data at the level of input. These strategies (VanPatten, 2015) allow learners to selectively attend to incoming stimuli without being overloaded with information:

- The Primacy of Meaning Principle. Learners process input for meaning before they process it for form;
- The First Noun Principle. Learners tend to process the first noun or pronoun they encounter in a sentence as the subject /agent.

According to The Primacy of Meaning Principle, during input processing, language learners initially direct their attention towards the detection of content words to understand the meaning of an utterance. Learners tend to focus their attention on content words in order to understand the message of the input they are exposed to. In doing so, they do not process grammatical forms, and consequently they fail to make form-meaning connections. This is the case for forms which are redundant in the input for example. Redundancy is when, in a sentence or discourse, both a grammatical form and a word encode the same semantic information. For example, when learners try to make moment-by-moment connections between surface forms and meaning for the sentence *Yesterday, I played tennis with John in the park*, they need to tag *played* as a verb (<+V>, <-N>), that its meaning refers to playing a sport, that it is past tense not present (<+present><-past>), and so on. However, because learners process the first element (the lexical item *Yesterday*) before the encounter the verb, they already know to interpret the sentence as a past time event. Thus, they can skip the form –*ed* in *played* as it encodes the same semantic information. The presence of a lexical item encoding the same referential meaning as the linguistic form makes the form redundant in this sentence and prevents learners from making an immediate form-meaning connection. This processing strategy is called the Lexical Preference Principle and it is a sub-principle of the Primacy of Meaning Principle. To make these connections successfully, language learners

must not only notice the form but also comprehend and process accurately the meaning encoded by the form.

The First Noun Principle asserts that language learners process the first noun or pronoun they encounter in a sentence as the subject or agent. This processing strategy leads them to misinterpret the meaning of an utterance and may cause delays in acquisition. Linked to this processing principle is the concept of parsing. One of the main functions of parsing is to figure out who did what to whom in a sentence. In the sentence *The police officer was killed by the robber*, learners, in the attempt to make moment-by-moment computation of sentence structure during comprehension, would process the first element they encounter in the sentence as the subject of the sentence. So, language learners would (The First Noun Principle) interpret the sentence as if it were the police officer who killed the robber. This will cause a delay in interpreting the meaning of the sentence and therefore a subsequent delay in the acquisition of syntactic structures that do not follow the expected word order, such as passive constructions, causative forms.

Language development requires making connections between language forms and functions (MacWhinney, 1987). The forms are morphological inflections and word order patterns. The functions are grammatical functions with specific semantic properties. The mapping of one form and one function is part of first language acquisition, and, according to this model, second language acquisition involves adjusting the existing mapping system in the L1 acquisition so that it is appropriate for the second language system. Input plays a key role in terms of providing multiple cues for the learners. According to this model, the acquisition of appropriate form-meaning mappings is driven by a number of factors mainly related to how much reliable a particular cue is. Three main factors (Ellis, 2012) contribute to the reliability of a given cue:

- Frequency. This factor relates to how often a form-meaning connection occurs in the input. If it is frequent, then the cue is strengthened and L2 learners can rely on the particular cue;
- Contrastive availability. This factor relates to whether the cue is important for interpreting meaning. If it does not (this is the case of forms made redundant by a lexical item for example) the cue will tell learners nothing about form-meaning connections;
- Reliability. This factor refers to how cues can be more reliable than others in helping learners to make a correct interpretation.

Second language acquisition is intake dependent since only input that has been noticed and processed is usable for acquisition. Exposure to input is both necessary and sufficient for first language learners to acquire all the components of their native language.

In other words, without input, children will not learn their first language. The question for second language learners is whether input is also both a necessary and sufficient condition for acquisition. There is evidence that quantity and quality of input matter for language learners. Language learners who are immersed in the target language, either because they live in the country where the language is spoken or because they are studying subjects such as business or arts via the target second language, have access to more and better input than students in traditional foreign language classes. Findings from immersion studies clearly indicate that immersion-language learning is superior to the foreign-language learning experience. Learners are exposed to a higher quantity of input and a better quality as the input learners

are exposed to is communicative input. This is also the case of the study-abroad experience. Learners who develop advanced proficiency in another language usually have some immersion experience. Input is a necessary and vital factor for second language acquisition as it provides the primary linguistic data for the creation of an implicit unconscious linguistic system. Different perspectives may differ on what happens to the input as the learner interacts with it and what winds up in the head but we all concur that the data for language acquisition is in the input.

Some knowledge of Language is Innate

Noam Chomsky's seminal work (1957) containing the poverty of stimulus argument is the basis of most of the claims that some knowledge of language is innate. For many linguists, the idea that we are pre-wired is the fundamental pillar of Chomsky claims. Language acquisition is determined by the way in which the input of what is being taught to the learner is organised in the functionality of the mind which is predisposed to carrying out this task. One of the key claims of the theory is that it sees languages as a sophisticated linguistic system which develops unconsciously in the human mind. Language is therefore not considered as something relatively simple to learn via stimulus and reinforcement (behaviour), but as a very complex, mental and elaborate system which exists inside the mind. All humans possess innate knowledge of language universals and principles which regulate the acquisition of languages. These universal and principles are modified and corrected in light of the input to which humans are exposed (White, 2003). He argued that children were not "blank slates" or a "tabula rasa" to be written on by their environments, but instead came to the learning task with something internal that guided their active processing of information to convert it into something useable at a given point in time. One of those things is language.

There are two accounts in language development: (a) domain-general; and (b) language-specific. From the domain-general view, language is seen like any other complex mental task such as playing chess, or doing a Sudoku. From the language-specific view, language is special function; humans are "hardwired" to learn language (mental representation) and have cognitive and separate mechanisms specifically designed to deal with language. The main implication from the domain-general view is that language acquisition is seen as a progressive accumulation of habits. Learners must imitate the language heard, the imitation has to be rewarded and as a result of this, the behavior is repeated and becomes habitual.

Chomsky and others however begged to differ. Children, for example, are active learners who can create language in their minds as they are exposed to language. Children start language development with a knowledge of language universals (innate knowledge) and from that they produce a series of hunches so to speak, about the new language system. They then, modifying and correcting these hunches in the light of what information they input. In general, those who advocate the language-specific account in language development have directed their focus on language in the mind and they search for an explanation of why it is possible for someone to acquire a language even though they may have received paltry input from a teacher (poverty of the stimulus).

Based on a large empirical database (White, 2003), three main claims are made. The first claim about the existence of an innate component in language development is that learners

sometime know how a linguistic feature works. Furthermore, they can even gauge what is disallowed in a language, as if by magic. The second claim, is that when learners are exposed to input, that input triggers a resetting mechanism which resets their parameters (if the first language of language learners is head-initial (position of verb) and they are learning another language that it is head-final, input will trigger for learners to re-set this parameter form head-initial to head-final). Following on from this, the third claim simply reinforces the view of innateness so that there are certain things like knowing the position of a verb and noun in a sentence, which does not have to be drilled into the learners. Chomsky had extrapolated Plato musings on how it was possible for an individual to know something that the individual had not entirely learnt. Hence Plato had been toying with the concept of innateness centuries before. The layer that Chomsky added to this was the notion that in terms of language acquisition, the learner must have an innate or inbuilt function or processing mechanism. He called it *language acquisition device.*

Language Development is Ordered and Stage-like

Language learners develop an internal linguistic system. This system is neither the first language nor the second language, but something in-between that learners build from environmental data (input). The internal language system (developing system) refers to a dynamic and changing system that is an implicit and an unconscious representation of the language (e.g., morphology, phonology, syntax, etc.). It is something that is continuously evolving and it is a complex unit made of networks of forms and lexical items linked to each other via semantic relationships (e.g., sad and funny); formal relationships (e.g., interesting and interested); lexical relationships (e.g., interesting and interest); and syntax (e.g., Subject-Verb-Object) that governs sentence structure which informs learners of what it is possible and what it is not possible in a target language. These relationships are firstly accommodated in the system and then restructured. How the system develops and what are the main factors which affects its growth have been discussed over the years. Language acquisition processes are characterized by orders and stages of acquisition which are fixed and cannot be changed (although a degree of variation can occur). There are two different types of development sequences in second language acquisition (Pienneman and Kessler, 2011) stage-like (specifically sentence structure); and order-like (i.e., A precedes B, B precedes C etc.). In the rich body of second language acquisition research, developmental stages (or sequences) have been documented for a number of features (e.g., negation in English, see Table1. below). Language learners (not matter their first language) seems to follow this order in the acquisition of particular structures.

Table 1
Stages of acquisition: English negation

Stage	Description	Example
A	'No' is in front of (not attached to) verbs or nouns, sentence initial	*No eat that*
B	'No' moves after the subject of the sentence, and in front of (not attached) to verbs or nouns; 'don't' appears as an alternative to 'no'	*I no eat that*
C	Negation is attached to verbs, modals negated	*I can't eat that*
D	'Do' with attached negation	*I don't eat that* *She didn't eat that*

Language learners seem also to follow a particular order in the acquisition of language morphemes. For English verbal inflections, the following acquisition orders have been established:

1   progressive *-ing*
2   regular past tense *-ed*
3   irregular past tense
4   third-person singular *–s*

Both stage-like and ordered second language development offer clear evidence that learners must possess internal mechanisms that process and organize language material over time in a systematic manner. What is still an open discussion in the field of second language acquisition are the reasons for such kind of an organization in the learner's mind (e.g., frequency, salience etc. can be seen as possible explanations). Second language research has focused a great deal on interlanguage grammatical development. Interlanguage is systematic (follow rules and patterns) and changes over the course of language development (order and developmental sequences). Morpheme accuracy order studies indicated that language learners from different first languages follow an order of acquisition. The consistency of the morpheme order led to the view that second language acquisition was a matter of "creative construction", and an implicit learning experience, based not on rule knowledge, but rather, on an innate capacity for second language acquisition.

Developmental stages studies (Pienneman & Kessler, 2011) on question formation have demonstrated that the acquisition of questions involves multiple stages. The first stage is characterized by the use of single words and formulaic expressions (e.g. car? what's that?). In the second stage, language learners use declarative word order. In the third stage, fronting of wh- words and do begin to appear ! (e.g. what it is?, do he like the food? By the fourth stage, inversion of *wh-* in copular questions appears !(e.g. what is it? who are you? The fifth stage is characterized by the appearance of inversion in questions that require do-support to lexical verbs !(e.g. do you like John? who is talking on the phone? In the final stage complex and less frequent used forms emerge (e.g. question tags). Developmental Sequences in L2 learners acquisition of tense and aspect, both of which involve the acquisition of morphological features, have been studied intensively in second language acquisition in more recent years. Studies of the acquisition of tense and aspect lend strong support to the existence of developmental patterns in second language acquisition. Language learners create a language system in an organized way that seem little affected by external factors such as instruction and correction.

Instruction Has a Limited Role in Language Development
This has been a key question and a central issue in the field of second language acquisition. Empirical research (VanPatten, Smith, & Benati, 2019) conducted in the last thirty years has focused on measuring the role of instruction in affecting the route (learning of various features in a specific order); the rate (learning of features at a specific speed); and the ultimate level of second language attainment (reaching higher or lower proficiency levels). Overall, there are two main views around the role of instruction. The first view is that instruction has a limited and constrained role. The second view asserts that instruction could a beneficial role under certain conditions.

Acquisition is an unconscious and implicit process, and learners acquire a second language through exposure to comprehensible and meaning-bearing input rather than learning grammar consciously through explicit grammatical rules (Krashen, 1982). In addition to the limited role assigned to grammar instruction, language learners acquire grammatical features (e.g., morphemes) of a target language in a predictable order and this is regardless of their first language or the context in which they acquire them. Instruction is also constrained by developmental stages, and language learners follow a very rigid route in the acquisition of grammatical features which cannot be skipped. If instruction is targeted to grammatical features for which language learners are developmentally ready, then instruction can be beneficial in helping them to move faster along their natural route of development.

Language instruction has a facilitative role when it is used for linguistic features, which are not too distant from the learner's current level of language development. Instruction might have a facilitative role in helping learners to pay selective attention to form and form-meaning connections in the input. Learners make form-meaning connections from the input they receive as they connect particular meanings to particular forms (grammatical or lexical) As previously argued, language learners find it difficult to attend to form and meaning simultaneously with the input they receive. Therefore, learners must be trained on how to process input more effectively and efficiently so that they are in a better position to process grammatical forms and connect them with their meanings.

Evidence in second language research shows that the route of acquisition cannot be altered. However, instruction might in certain conditions speed up the rate of acquisition and develop greater language proficiency. What are the conditions that might facilitate the speed in which languages are learned? A first condition is that language learners must be exposed to sufficient input. A second condition is that language learners must be psycholinguistically ready for instruction to be effective. A third condition is that instruction must take into consideration how L2 learners process input. Second Language acquisition is an unconscious and implicit process, and language learners acquire a second language through exposure to comprehensible and message-oriented input rather than acquiring grammar consciously through explicit grammatical rules.

Conclusive Remarks

Theory and research in second language acquisition has emphasized the complexity of acquisition processes. How learners process language, how they intake it and the new language system develops, and how they access the information to communicate are key areas in this field of enquiry. Below is a summary of the key facts about what we know:

• Language can be defined as mental representation or a skill. The two are different. However, in both cases input is the key ingredient for language development;

• Second language acquisition is primarily a matter of developing implicit knowledge. Our internal language system is an abstract and implicit system;

•Language learners require extensive input exposure to build their internal language systems apart from some universals exceptions. Input need to be easily comprehended and message-oriented to be processed effectively by second language learners;

•Language learners focus primarily on meaning when they process elements of the new

language. Language development requires learners to make appropriate and efficient form-function connections (the relation between a particular form and its meaning/s);

•Language learners process linguistic features following a natural order and a specific sequence (i.e., they master different grammatical structures in a relatively fixed and universal order and they pass through a sequence of stages to master grammatical structure). However, instruction might have a facilitative role in language development through input enhancement/s.

One of the underlying questions in second language research is: Do first and second language acquisition share the same internal process and mechanisms for the development of language?

- First and second language acquisition require the same ingredient to be successful: comprehensible and message-oriented input.
- First and second language acquisition require language learners to engage in contexts in which they hear and see language in communicative contexts and they engage in comprehension and interaction with that input.
- First and second language acquisition have both ordered language development. The same factors seem to impact development: markedness, universals of language, frequency in the input, among others.
- First and second language acquisition are not responsive to outside manipulation. The effects of instruction on language development are limited and in some cases non-existent.
- First and second language acquisition are affected by both input and interaction. In both contexts, being part of communicative interactions gets the learner more appropriate-level of input.
- First and second language acquisition are both mainly implicit. Explicit learning may serve more of an affective factor. Mental representation is far more complex, and more abstract than any explicit learning or processing could achieve. Implicit processing and organization of linguistic are key factors in language development.

Second language learners have something internal to them that first language learners do not: another language (or other languages). However, the influence of the first language is constrained by the universals of language. The presence or absence of another language in the mind/brain does not obviate the role of input and does not compromise ordered language development. So, the presence of the first language inside the mind/brain of language learners does not alter the processes or block what the internal mechanisms responsible for language development do or must do (VanPatten, Smith, & Benati, 2019).

What are the implications (theory, research and pedagogy) of this view on the nature and role of language and language development?

In terms of theory and research on language development, a clear distinction needs to be made between mental representation and skill in language development. Language is an implicit, abstract and complex system and language development is input and input processing dependent. Output processing is ordered and stage-like constrained. Any consideration in relation to the role of instruction should account for these facts (Schwieter & Benati, 2019).

Considering that language is complex, implicit and abstract, language instruction should not consist of explanation of rules (paradigms) and mechanical practice (Benati, 2020, 2021). Traditional practice might help to develop a language-like behavior (skill) but it not responsible for language development (mental representation of language). Instruction should be less about the teaching of rules and more about exposure to form. Input (comprehensible and meaningful) is an indispensable element in language development.Instruction ought to be less about manipulating output and more about processing input (input manipulations through input enhancement and structured input). Although, output is constraint by processability, meaningful output practice has a role in language development.

Future research needs to be appropriate and sound empirical research making used of psycholinguistic and neuro-linguistic methodological tools to further investigate the role and nature of language and language development. Future language teacher training programs must fully consider the role and nature of language and language development and provide language teachers with a more evidence and principle-based approach to language instruction.

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Ethics Declarations

Competing Interests
No, there are no conflicting interests.

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