Course: Psycholinguistics

SIXTH SEMESTER

COURSE IN

PSYCHOLINGUISTICS

FOR LMD

STUDENTS OF

ENGLISH

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Course Description

1. Content

2. Summary

This course presents a succinct introduction of the field of Psycholinguistics. It focuses on language acquisition with specific reference to its research methods, data and theories. This course overviews child first language acquisition, learners' second language acquisition and interlanguage.

3. Course Objectives and Expected Outcomes

By the end of the sixth semester, learners will acquire the fundamental concepts that relate to Psycholinguistics; the field of study that deals with the relationship between the human mind and language. Learners will be able to:

- Explain and illustrate the relationship between the human mind and language.
- Explain the scientific study of language and brain and discuss research on psycholinguistics.
- Differentiate between First Language Acquisition (FLA) and Second Language Acquisition (SLA) as related areas in psycholinguistics.
- Recognize the features and characteristics of acquisition and learning and the contexts in which they occur.
- Apply criteria to differentiate between FLA and SLA.
- Identify steps of language acquisition and language learning.
- Explain the different learning theories in terms of their views regarding FLA/SLA and their limitations.

4. References

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I. Introduction to Psycholinguistics

Linguistics covers a vast area of topics and is divided into many sub-disciplines including the nuclear areas (Phonology, Morphology, Syntax, Semantics, and Pragmatics) and the interdisciplinary areas (Sociolinguistics, Psycholinguistics, and Neurolinguistics). The focus in this course will be on Psycholinguistics, particularly, Developmental Psycholinguistics.

1. What is Psycholinguistics?

Psycholinguistics is an interdisciplinary field of study that combines the fields of linguistics and psychology. It is also called the Psychology of Language. It is defined as the study of the cognitive or mental processes and representations underlying language use. Mental representations refer to how words are stored in the mental lexicon, and how the meaning of strings of words, sentences and utterances is represented in the human memory. Mental processes, on the other hand, pertain to how we, humans, recognize words effortlessly, and how we transform an idea into an utterance, or how we construct an utterance while speaking.

Psycholinguistics, then, deals with the cognitive processes that serve in generating and producing an unlimited number of grammatical and meaningful sentences out of a set of vocabulary and grammatical structures, as well as the processes that enable to understand utterances, words, and texts. It deals with the psychological, and neurobiological factors influencing humans' acquisition, comprehension, use, and production of language.

In psycholinguistics, researchers attempt to find out a model that describes how language is processed in humans' brain. They try to uncover universal mental processes that govern the development, use, and breakdowns of language.

2. Areas of Psycholinguistics

In their research, psycholinguists attempt to answer the following questions:

- What is knowledge of language?
- How is knowledge of language acquired?
- How is knowledge of language put to use?

The first question represents the static or representational area of psycholinguistics; how language is stored in the human memory. The second question concerns the dynamic and procedural aspect that deals with language acquisition. This sub-branch is called Developmental Psycholinguistics. It studies infants' and children's ability to learn language. The third area in psycholinguistics pertains to language processing. This relates to the area of language production and language comprehension.

Chomsky (1986) considered language loss (as in Aphasia: inability to understand or produce speech as a result of brain damage) as a fourth area of psycholinguistics. Accordingly, there are four sub-fields of psycholinguistics: acquisition, production, comprehension, and dissolution. Psycholinguists, then, attempt to figure out the processes and tasks involved in the use of human speech and language. The relationship between those sub-branches can be examined from a diachronic/synchronic, and synthesis/analysis framework (Scovel, 1998).

Psycholinguistics is a hybrid discipline that combines linguistics and psychology. Research within this field can be broken down into specific topics, some of which relate to linguistics areas and others to Psychology. The first of these linguistics topics is phonetics or phonology, which is the study of speech sounds. The second topic relates to morphology which is the study of word structure and relationships between words. There is also syntax, which is the study of word patterns and is concerned with formal sentence structures. Semantics, as one of the branches of linguistics, refers to the study of the actual meanings of words and sentences. Last, there is pragmatics, or the study of the context or interpretation of meaning in relation to context. As for Psychology areas, Developmental Psycholinguistics is one of the dominant areas that attracted psycholinguists' attention. It studies infants' and children's' ability to learn and process language, as it will be explained in the forthcoming lectures.

Psycholinguistics is the study of the nature and structure of the human mind through speech and language. It studies how we process language and use it in communication (as speakers involved in the use and production of language or listeners involved in its acquisition and comprehension).

II. First Language Acquisition

Developmental psycholinguistics "examines how speech emerges over time and how children go about constructing the complex structures of their mother tongue" (Scovel, 1998, p.7). Researchers in this sub-branch of psycholinguistics attempt to answer questions as: how do babies start to use their mother tongues? How do they develop their ability to understand and communicate with their caretakers?

1. The Difference between Acquisition and Learning

The expressions 'language learning' and 'language acquisition' are sometimes used interchangeably by linguists. However, psycholinguists tend to distinguish between the two. They use the term 'language acquisition' to refer to children's learning of the mother tongue as a first language (L1) and reserve the term 'language learning' to denote any language that is learnt as a second language (L2) by adults. There is also a list of differences between the two concepts as summarized in the table below:

Language Acquisition L1	**Language Learning L2**
- Proceeds rapidly. - Takes place during the formative years of one's life (during the critical period of the child before 12 years of age). - Subconscious and effortless (despite their unawareness of grammar rules, children can intuitively distinguish between what is right and wrong or learn through a trial and error method). - Similar stages of development (innate faculty that serves in the mastery of a language). - Takes place through exposure to daily spontaneous conversations (informal settings or natural communication).	- Proceeds relatively slowly. - Knowledge of L1 serves a sufficient basis for the learning of L2. (Generally for adults or students). - Conscious, deliberate and effortful (students are taking part in their learning and are motivated). - Recognizable stages of development with prominent individual variations. - Requires instruction and training (formal settings and teaching) + exposure to spontaneous speech.

- Focus is on meaning and communicative intentions. - Adult-like mastery of all aspects of the language (achievement of conversational fluency).	- Focus is on form (grammatically correct structures and rules of the language). - Fossilization of errors is commonplace (learning L2 does not necessarily lead to conversational fluency).

This distinction between acquisition and learning" is based essentially on Krashen's Monitor Model Theory (1982) that will be explained in details in "Theories of Language Acquisition".

2. Steps of First Language Acquisition

a. Cries

Research on infants' linguistic knowledge and ability to use it revealed that crying is a kind of communicative message through which babies try to express their needs and discomfort. Cries are bound to the human autonomic nervous system. They are spontaneous and unconscious reflexes of some external stimuli and are not controlled by the human voluntary system. Cries indicate babies' ability and readiness to use language and speech later in life. They also train babies to time their breathing system and patterns and to sustain their vocal cords. This training is essential for acquiring the ability to produce successful communicative speech.

Crying is said to be of two types: iconic and symbolic. In their first days, babies' cries are iconic; they reflect the degree of discomfort they are feeling. Crying also differs in relation to babies' biological needs including hunger, frustration, need to sleep, or change of diaper. Their crying is different from one state to another; the hungrier a baby becomes, the louder s/he (it) cries. After one month or two, crying becomes symbolic, not necessarily linked to their sense of discomfort or pain. Crying can be a way to elicit the mother's attention. It represents their communicative intentions to manifest their feelings, wants and reactions.

b. Cooing

After several weeks of interaction with parents and caretakers, infants start to coo. Cooing means speaking in a soft gentle way. A two-month-old infant tries to make soft gurgling sounds, a kind of musical vocalization, as if s/he is expressing satisfaction, i.e. cooing. At a first step,

cooing takes place through uttering initial vowel sounds like "ooo". As a second step, infants generally add or include consonants to their vocalizations such as "mamamama". Cooing is a subsequent stage of the infant's linguistic evolution of the mutual communication between the baby (vocalizations) and his caretaker (reinforcement or positive reaction to the infant's attempts to utter distinct sounds during their process of socialization).

c. Babbling

Babbling is the third stage in child language development and language acquisition. It takes place when an infant is about four to six months during which s/he starts naturally uttering various random consonants (marginal babbling), and later articulating vowel syllable clusters (canonical babbling at around eight months). Canonical babbling is not necessarily related to or based on the infant's mother tongue (caretaker's language). In psycholinguistics, babbling is considered as the first stage which proves the influence of the mother tongue exposure on infants' language acquisition.

d. Holophrastic Stage

Holophrastic stage is the stage in which toddlers start learning different linguistic expressions of their mother tongues as single words or as whole chunks, for example: the word 'howdy' for the expression 'how do you do?', the word 'allgone' for the expression 'it's all gone'. It is the climax of an infant's early language development. A twelve or thirteen months' toddler begins using his/her own and personal one-word expressions that s/he invents to convey his/her thoughts and messages or even to get what s/he wants or needs. Similar to infants' first steps, first words are considered as indicators of their maturation.

e. Pivot Grammar

This stage of language development is generally noticed with eighteen months toddlers who start combining words together to express themselves. Pivot grammar means the use of two-word utterances, containing a function word and a content word, by toddlers in a manner that resembles the sentences used by adults. When using such two-word utterances, children usually employ different linguistic clues such as intonation, and paralinguistic clues (gestures, and facial expressions) that help in understanding their messages. Despite their grammatically-incorrect

utterances, children show sensitivity to their mother tongue's word order, even at early stages of development.

3. Language Acquisition Research

In developmental psycholinguistics, children's acquisition of grammar has received intensive research in comparison with the other stages of language acquisition (Transformational Generative Grammar), due to the easiness to collect its data. Among the pioneering research studies on language development, a project was conducted by a group of researchers to teach chimpanzees the American Sign Language. Nim Chimsky, a chimp, was taught a form of human sign language. Its acquisition and use of this sign language has been compared with the language of a two-year-old child. At first glance, results were in Nim's favour which demonstrated the use of four word phrases in contrast with two word utterances used by the child. However, analysis of the words used by the child revealed that there was a great lexical diversity displayed, no or rare repetition, rule-governedness of the structure used. This entails that children realize rapidly and intuitively, at an early stage, the non-arbitrariness of words in language.

Subsequent research on children's grammar development showed that children are genetically programmed and that they have an innate language ability that helps them be accurate and creative in their use of language, despite their unawareness of the grammar rules of their mother tongues.

III. Theories of Language Acquisition

Research on language learning (both first and second) has drawn on the dominant linguistic and psychological paradigms. Some of the theories that relate to language learning, in particular first language learning, namely the behaviorism, the innateness, the cognitive development theory, the monitor model theory, and the sociocultural theory will be presented below.

1. Behaviourism (B.F. Skinner)

1.1. Arguments

The theory of behaviorism was founded on linguistic and psychological backgrounds. The linguistic assumptions that underlie the behaviourist view of language were elaborated by Bloomfield (1933) who perceived language as speech rather than writing. Speech is conceived of as a precondition for writing. This view stemmed from the fact that children learn to speak before they learn to write. Moreover, there are no communities with only written language. All speech communities have their oral languages.

From the behaviourist standpoint, children learn to speak through mimicking (imitating others' words and speech) or analogizing (comparing between previous knowledge and new one). Inherent in this view is the concept of habit. Children establish a set of habits (ways of speaking) and develop their linguistic repertoire by analogy. Speech, from this standpoint, is a reaction (response) to some external stimulus. The child gradually learns to make the stimulus–response connection. For example, the child learns to utter the word doll (response) when he sees its object (stimulus).

This view was developed on the basis of some experiments psychologists (such as B.F. Skinner) have conducted on rabbits through developing habit-formation. Those psychologists assigned different tasks to rabbits and trained them to learn some behaviours through reward and punishment. Desirable behaviours and reactions were encouraged and rewarded. This is known as positive reinforcement. Undesirable behaviours, on the other hand, received negative reinforcement; they were not encouraged, and sometimes punished. By the same token, children learn their languages through imitating their parents' speech. If their attempts are successful, then they will be praised by adults and vice versa. This type of reward/punishment-based learning is called operant conditioning. Learning, accordingly, involves the formation of habits using

stimulus–response sets that are experienced (encouraged/rewarded, discouraged/punished). Another key concept in the behaviorist theory is that of transfer. The latter means the use of old knowledge and skills in the performance of new tasks and activities.

1.2.Shortcomings

- One main point that is not fully applicable when learning a language is that of imitation. Indeed, language consists of a set of structures or rules that cannot be learnt through mere imitation. This is revealed in the developmental nature of errors children commit when applying grammar rules. For example, a child may say "bringed" instead of "brought". In this case, he is not imitating an adult but rather over-applying the rule of the past tense verbs (usually through adding 'ed'). The child discovers this rule, but is not aware of the irregular verbs.
- In most cases, children are unable to fully repeat adults' utterances, particularly the complex structures that cannot be easily processed in their minds.
- The majority of children pass through the same developmental stages in acquiring their languages.
- Research on children linguistic development identified a critical period for acquiring a language. The critical period hypothesis states that children can acquire a language and demonstrate a full competence if sufficient exposure is provided during their first seven years of age. By the age of about eight, it will become hard for children to catch up (example of Genie).

2. Innateness (Noam Chomsky)

2.1.Arguments

Following the limitations that were raised against the behaviorist theory, subsequent research on child language acquisition, during the 1950s and 1960s, argued that language is rather learnt through formulating the rules of language by means of an inborn faculty known as Language Acquisition Device (LAD).

Chomsky (1957), one of the leading figures of the innateness theory, argued that children do not passively receive the language they are exposed to through imitation. Instead, children tend to actively use the language they process through analysis, analogy, hypothesis testing and generalization. In most daily cases, adults do not fully stick to the grammar rules of their language

and children, on their part, receive a small sample of language. In his Universal Grammar (UG) theory, Chomsky explained the speedy success of children in acquiring language with the existence of innate universal properties of language. UG is "the system of principles, conditions, and rules that are elements or properties of all human languages" (Chomsky, 1975, p. 29). It "is taken to be a characterization of the child's prelinguistic state" (Chomsky, 1981, p. 7). Children, then, show a natural predisposition to learn language. While hearing new utterances or expressions, the human brain starts interpreting that input with reference to the underlying principles and structures it contains biologically. This innate faculty is called the Language Acquisition Device (LAD). According to Chomsky, all languages exhibit common principles and the child is expected to establish how the specific language s/he hears expresses these underlying principles.

2.2.Limitations

- The basic criticism of Chomsky's innateness theory is that it is absolutely theoretical. Unlike the behaviorists, who conducted experiments, Chomsky did not study real children.
- Chomsky's main interest was on grammar and his aim was explaining complex grammatical rules.
- This theory focuses on children's exposure to language without reference to the role parents and caretakers play in the process of acquiring language (their intervention).

3. The Theory of Cognitive Development (Jean Piaget)

3.1. Arguments

In his theory of cognitive development, Jean Piaget (1936) explained how a child constructs his world view and emphasized the role of human cognition or cognitive development in language acquisition. Piaget criticized the innateness theory and perceived child's cognitive development as an ongoing process that takes place due to biological and social influences (biological maturation and interaction with parents). A child reorganizes his mental world perception as a result of experience and maturation through distinguishing between what is known and what is recently discovered. For Piaget, a child cannot acquire the language of a given concept before understanding that concept. This means that cognitive development is a prerequisite for language acquisition. To explain this idea, Piaget provided two phenomena that children usually pass through: seriation and object permanence. Child's cognition develops gradually and this is revealed in his ability to do different intellectual tasks, such as comparison between objects' size.

This means that if you give the child a number of bottles, s/he could arrange them in order of size (seriation). According to the theory of cognitive development, a child who had not yet reached this stage would not be able to acquire and use comparative adjectives like "larger" and "smaller" in his speech. Object permanence is related to child's unawareness of the existence of objects that are out of their sight. During the first year of their age, children think that objects that they cannot see do not exist. However, when they reach the age of 18 months, children will gradually realize and develop an understanding that objects do exist even if they are hidden. At this stage, children usually demonstrate an increase in the amount of the vocabulary acquired and used in their interactions, which entails their grasp of the idea of object permanence.

In further explanation of the theory of cognitive development, Piaget suggested three main concepts: schema, adaptation process, and stages of cognitive development. Piaget viewed child's intellectual development as a process of adaptation (adjustment) to the world and the existing schema (knowledge or building blocks that help in forming mental representations of the world) through assimilation (i.e. the use of existing schema to deal with new experiences and situations) and accommodation (when the existing schema is not useful, there will be a need to make slight changes that work with the new situation). Moreover, he described four stages of child's cognitive development. These stages take place gradually and the age at which children go through each varies considerably. He organized them as follows:

a- Sensori-motor Stage (0-2 years):
- Baby learns through action and sensory information and can differentiate self from objects.

b- Pre-operational Stage (2-7 years):
- Child starts to think symbolically using images, words and drawings to represent objects.
- Infant still thinks egocentrically.

c- Concrete-operational Stage (7-11 years):
- **Child learns seriation and** t**ransitivity (**logical relationships among elements in a serial order).
- **Child learns to classify** objects according to appearance, size or other characteristic.
- **Child learns to decenter himself/herself** by taking into account multiple aspects of a problem to solve it and develops the ability to view things from another's perspective.
- **Child learns to reverse elements and recognize that they** can be changed, then returned to their original state, and still conserve their original state.

d- Formal operational Stage: (11 years +):

- Child begins to think abstractly, reason logically and draw conclusions from the information available.
- Child becomes concerned with the hypothetical, the future, and ideological problems.

3.2. Criticism

Piaget's theory of cognitive development is different from the preceding theories in many aspects. First, it is concerned with children, rather than all learners, hence focuses on development, rather than learning per se. Second, Piaget suggested stages of children's intellectual development, marked by qualitative differences with the assumption that all children go through the same sequence of development, but at different rates. However, critics challenged the existence of those stages of development, their precision and whether all children go through them, particularly the formal operational stage. Additionally, Piaget's focus was on determining the universal cognitive stages and their relation with children's biological maturation. The role of social interaction was ignored and not emphasized. Vygotsky, however, argued that social interaction is crucial for cognitive development; the child's language learning and acquisition always take place in a social context, not individually.

4. Monitor Model Theory (Stephen Krashen)

4.1.Arguments

Krashen (1982) suggested a theory for SLA which is based on five hypotheses. This theory holds that the success and failure to acquire L2s depends on the amount of comprehensible input the acquirer receives (and understands) and the degree to which the acquirer is 'open' to input. These hypotheses are as follows: the Acquisition/Learning Hypothesis, the Natural Order Hypothesis, the Monitor Hypothesis, the Input Hypothesis, and the Affective Filter Hypothesis.

For Krashen, adults have two distinct and independent ways of developing knowledge in an L2: acquisition and learning. Acquisition is also called implicit learning, informal learning, natural learning and, non-technically, as 'picking-up' the language. It is a subconscious process in that the acquirers are not aware that they are acquiring language; they are, however, aware that they are using it for communication. Language acquisition or acquired competence that results from this unconscious process is also subconscious. This means that people are generally not aware of the rules of the languages they have acquired, but they have a 'feel' for correctness. The

language/speech we hear/read 'sounds' or 'feels' right or wrong, even when we do not know consciously which rule(s) was/were violated. Learning, on the other hand, is also referred to by other terms: formal learning (knowledge), explicit learning and, non-technically, as 'knowing about' a language. Learning pertains to conscious knowledge of an L2. This entails knowing the rules, being aware of them, and being able to talk about these rules.

The second hypothesis in Krashen's theory is called the Natural Order Hypothesis. This hypothesis holds that acquisition of grammatical structures, particularly morphemes, proceeds in a highly predictable order. This means that there are structures which are acquired earlier than others. In fact, Brown's (1973) research on L1 acquisition concluded that some grammatical morphemes (function words) such as: progressive marker –ing, and plural marker –s are acquired first while 3rd person singular marker –s and possessive –s are acquired much later. The difficulty order was also found to be similar to the acquisition order. The resulting order in acquiring L2s was also found to be almost the same in child acquirers of different L1 backgrounds, though somewhat different from L1 acquisition order. Moreover, on their path to mastery, acquirers were found to make very similar errors, known as 'developmental errors'. As an example, L1 and L2 acquirers pass through a stage where they place the negative marker outside the sentence (no/not I understand) and then progress to a stage where they place it between subject and verb (I no/not understand).

Third, the Monitor Hypothesis posits that acquisition and learning are used in very specific ways. Acquisition 'initiates' our utterances in L2 and is responsible for fluency whereas learning makes changes in the form of utterances (editor/monitor) after they been 'produced' by the acquired system. Furthermore, this conscious or formal learning can be used only in three conditions: when there is time to think about and use rules (not as in normal conversation where there is hesitation and inattention), when the learner's focus is on form and his thinking is about correctness, and when there is knowledge of rules. In situations where learners can and do monitor, a rise in rank of the late acquired, more learnable items (such as 3rd person singular) is noticed.

The Input Hypothesis attempts to answer the question: "How do we acquire language?" This hypothesis claims that: "a necessary (but not sufficient) condition to move from stage i *(current competence)* to stage i+1 *(next level competence)* is that the acquirer understand input that contains i+1, where "understand" means that the acquirer is focussed on the meaning and not on

the form of the message" (Krashen, 1982, p.21). Krashen further explained that understanding language that contains structures a little beyond our competence is possible with the use of context, our knowledge of the world and extra-linguistic information of language directed at us.

The Affective Filter Hypothesis claims that there are some affective factors that relate to success in L2 like motivation, self-confidence and anxiety. A learner with a strong (high/ heavy) affective filter for L2 acquisition will seek and understand less input. Most importantly, if learners understand a message, it will not reach the part in the brain responsible for acquisition, leading to fossilization. Affective variables, then, impede or facilitate the delivery of input to the LAD.

4.2.Criticism

- The distinction between acquisition and learning as suggested by Krashen is said to be fuzzy and unclear as there is no interface between the two processes.
- In the Input Hypothesis, Krashen discard the role L2 learners play to develop their language competence when he accredited success in an L2 to input alone. Such a theory ascribes little credit to learners and their own output.
- Krashen's "i+1" formula represents abstract concepts (i and 1) that cannot be defined.
- The idea that speech will 'emerge' in a context of comprehensible input excludes the group of learners whose speech does not 'emerge'.