LINGUISTIC INTELLIGENCE:PSYCHOLINGUISTIC, LINGUISTIC CREATIVITY & METACOMMUNICATION

Fausto PRESUTTI, Ph.D.,

I.S.P.E.F. & E.C.E. President

f.presutti@ispef.it

Abstract: *This Psychology article presents the theoretical-conceptual models that characterizes thekeys to understanding and to study mental capacity and communication skills, useful in being able to know and analyses Linguistic Intelligence. Studies on the development of Linguistic Intelligence have been conducted predominantlyby the following disciplines:*

- *Neurolinguistics that led to the formulation of mental imaginative insights as the fundamental conception of the Linguistic Generative Intelligence model,*
- *Social Cognitive Psychology that led to the formulation of mental evolutionary adaptation as a fundamental principle of the Linguistic Constructive Intelligence model;*
- *Psychology of Communication that led to the formulation of continuous, dynamic and interactive relationship of the communication cycle as a fundamental axiom of the Communication Sciences.*

Linguistic Intelligence is determined by typical forms of thinking and reasoning, whichadopt particular mental abilities and specific expressive competences with respect to other communication codes, such as the graphic-pictorial, the mimic-gestural, the musical, etc.

The structures, properties, and expressions of Linguistic Intelligence, that characterize theconception, construction and formalization of verbal or written communications between people, can be analysed on the basis of three different fields of studies:

A) PSYCHOLINGUISTIC: study the psychological characteristics and rules of codification and decoding of language, in the psycho-cognitive-pragmatic field of study of linguistic communication).

PsychoLinguistics is connoted by 4 models: Structuralist Cognitivism, Empirical Taxonomy, Generative Neurolinguistics, Linguistic Metacommunication;
B) LINGUISTIC CREATIVITY: acts in the psycho-ideative field of study of linguisticcommunication.
The Creativity is determined by the mental processes of Constructive Intelligence and
Generative Intelligence.
The mental processes that characterize Creativity are: the Global Perception, the
Personalizing Insights, the Multifaceted Vision, the Cognitive Originality;
C) LINGUISTIC METACOMMUNICATION: study the types and modes people use to express thoughts and concepts that go beyond, beyond, what the cognitive and affective contents mean at the level of language and communicative message in the psycho-emotional and socio-cultural field of study of linguistic communication.
Linguistic Metacommunication is determined by mental symbols (cultural symbols andpsychic symbols) that the person processes and expresses during communication.

Key words: *Linguistic Intelligence; Psycholinguistics; Linguistic Creativity; Metacommunication; Development of Linguistic Intelligence; Neurolinguistic Communication Psychology; Communication Science.*

A. Studies on the evolution of linguistic intelligence:neurolinguistics and social cognitive psychology

Studies on the development of Linguistic Intelligence have been carried out mainly by Neurolinguistics and Social Cognitive Psychology.

Neurolinguistics considers the biological and neurological aspects of the processes and apparatuses involved in the acquisition and use of language.

Neurolinguistics is based on studies of *Genetic Psychology*, characterized by the comparison between the maturation of structures and physiological processes related to language and the expressive-communicative abilities of the same.Thus, Neurolinguistics is based on studies of genetic evolution of human language abilities and studies people's linguistic aptitudes and potentialities

Social Cognitive Psychology considers the conditioning of social reality and the educational environment in the development of Communication and

Linguistic Intelligence andtheir influence in the cultural context as a stimulus and tool to promote socialization and culturalprocesses.

Social Cognitive Psychology posits that language development is predominantly determined by environmental and social influence.

Behaviorist Psychology can be aggregated with the theory of Social Cognitive Psychology, whose theoretical model is characterized by the following principles:

1) the child learns to speak through a stimulus-response process, where the approval of parents and the family environment serves as constant social reinforcement;

2) through daily interaction and verbal communication, the social environment progressively shapes language acquisition, reinforcing the learning of language elements and rules that are used in the community. Child distinguishes the right words from the wrong ones basedon the association of rewards and punishments exchanged during social interaction.

In a manner diametrically opposed to Social Cognitive Psychology, Neurolinguistics highlights the evolution of language through innate predisposition and genetic programming ofthe maturation of the structures and physiological processes specific to language itself.

For Neurolinguistics, language is a means of communication particular to the human species; its development is determined by a biological matrix that through the continuous exchange between genetic heritage and environmental influence, allows the maturation of the biological functions and physiological mechanisms of language.

In the Neurolinguistic conception, language evolves into a system of rules and linguisticknowledge, , which is used as early as infancy to speak and to understand others who speak.

Noam Chomsky 1957, 1964, 1965a-b, 1968 a-b, 1969/70, 1975a-b-c-, 1977, 1980, 1981,

1987), one of the major exponents of Neurolinguistics, theorizes that each individual is endowed with m physiological apparatus of language acquisition (LAD), determined by geneticfactors typical of the human species.

Through activation of this language acquisition system, humans have the ability to process data related to language and can infer correct and socially understandable grammaticaland syntactic forms.

Chomsky hypothesizes, then, that the development of language is marked by a generationof language system, which is shaped by social experience.

Aleksander R. Lurija (1951, 1959, 1960, 1968, 1974, 1975 a-b, 1976) in his study of the neuropsychology of language, highlights the fact that language is a regulator of behavior that allows the child to learn about reality in a richer, more evolved way.

This study is characterized by the theoretical contributions of Lev Semenovic Vygotskij(1934, 1960, 1966, 1972) who points out that language ability contributes to the formation anddevelopment of thought.

According to this theoretical model, the development of thought and language converge,allowing for a more organic structuring of the experience.

The development of children's mental processes starts with dialogues made up of gesturesand words to arrive at communications that use autonomous thinking; these social relationships allow content and vocabulary to be internalized, resulting in complex, conceptualized personalresponses.

Since speech is a mental abstraction that can be used as a cognitive or reasoning element,allora il pensiero diventa espressione verbale e il linguaggio diventa contenuto razionale.

Therefore, intellectual development consists of reflection on experience and personal elaboration on the linguistic messages made between individuals.

Therefore, Vygotskij's theoretical model highlights that the convergence of thought and language allows for the formation of a superior synthesis of rational language.

This conception can be schematized as follows

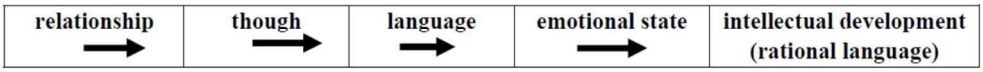


Figure 1: *Vygotskij's theoretical model*

To Vygotsky's model can be correlated Jean Piaget's model (1923, 1937 a-b, 1966, 1967)characterized by the theory that: the development of thinking allows the evolution of linguisticability.

According to Piaget, it is not accurate to say that intelligence depends on language, instead the conception that language depends on the intelligence developed by the individual isright. However, the processing and use of language is important in human logical-cognitivedevelopment in that:

a) allows you to recall facts and events, freeing them from perceptual limitations;

b) allows you to represent the elements of a context in an abstract conceptual and rational orderso that you can deepen your understanding of them;

c) is the most complex form of symbolization possessed by man.

For Piaget, language is not the only communicative medium that enables intellectualdevelopment.

Jerome Bruner's (1956, 1966, 1968, 1973, 1983, 1986, 1987) conceptual model is significantly grafted into Jean Piaget's theoretical conception.

Bruner views language as a tool of thought and a means of communication.

Language is the final symbolic stage by which the child represents and develops thought, since learning starts with concrete experiences and then arrives at abstract conceptualizations.

Moreover, according to Jerome Bruner, language has the fundamental property of being the means by which the child mentally processes reality and returns to reality through the socialcommunication of its reasoning.

A further development of Bruner's theory is given by Howard Gardner (1983, 1988, 1993, 1999, 2004, 2005, 2006, 2013), who considers the Linguistic Intelligence as a specific tool of auditory-vocal thinking, therefore promotes a particular form of mental processing andreasoning.

Language uses specific mental capacities and physiological structures such as to developa particular form of intelligence, which can be referred to as "*Linguistic Intelligence*".

Howard's theory is based on the conception that. The Linguistic Intelligence is developed through relationships and social experiences.

The meaningful exchange of messages between people on a cognitive and emotional level, allows to communicate contents and concepts expressed through cultural and psychic symbols that go beyond what has been communicated linguistically.

The study of this type of communication allows the researchers of the Palo Alto School to define the concept of Metacommunication. and in particular to Paul Watzlawick and collaborators (1967, 1974, 1976, 1977 a-b, 1983, 1984, 1986) allows us to define the fundamental axioms of human Communication. Linguistic Intelligence and Metacommunication are the main fields of study and application of Psychology of Communication and Communication Sciences. The connections of Neurolinguistics theories with Social Cognitive Psychology theories and with Communication Science theories are multiple and interdependent in a way that createsone complete and complex model, as depicted in the following conceptual representation.

Figure 2: STUDIES ON THE EVOLUTION OF LINGUISTIC INTELLIGENCE

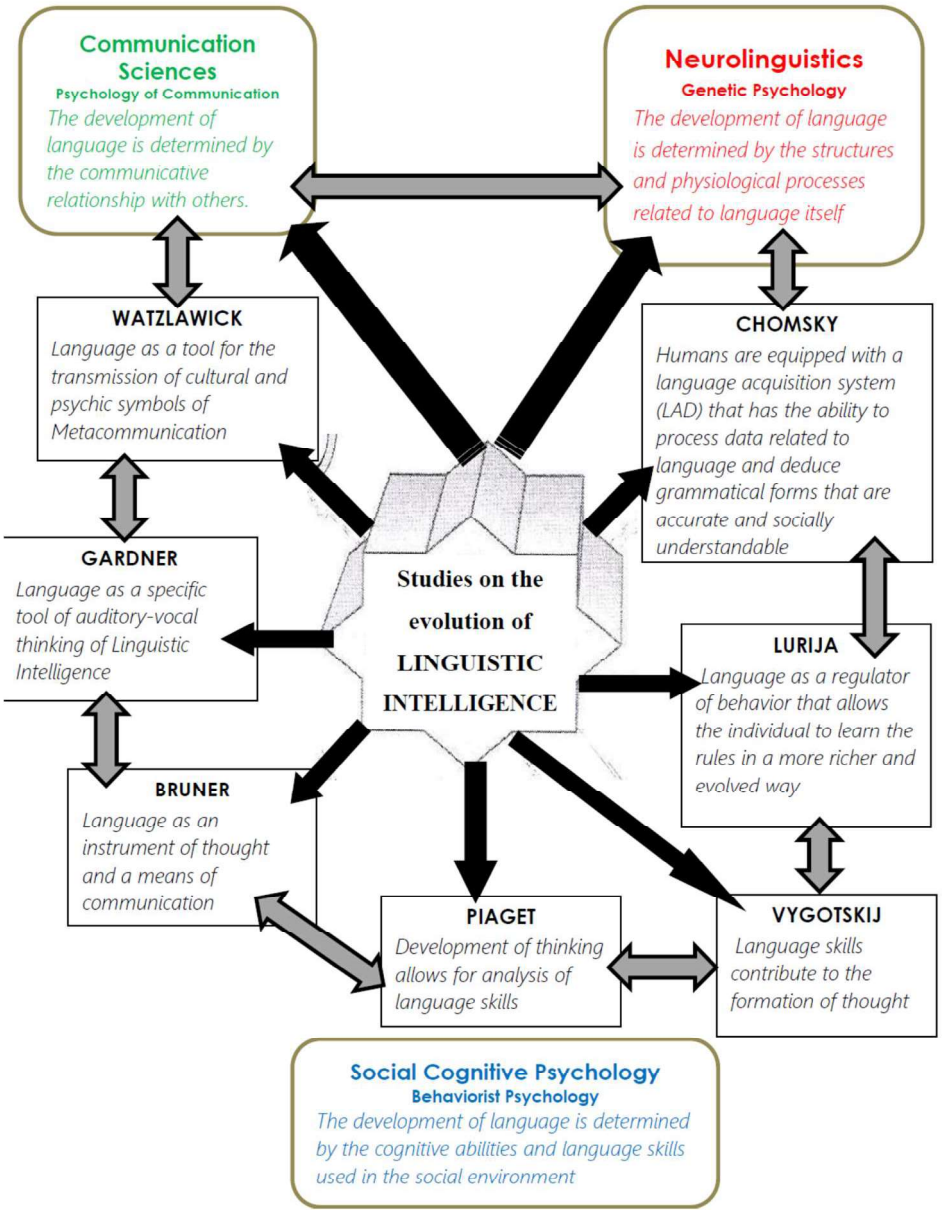
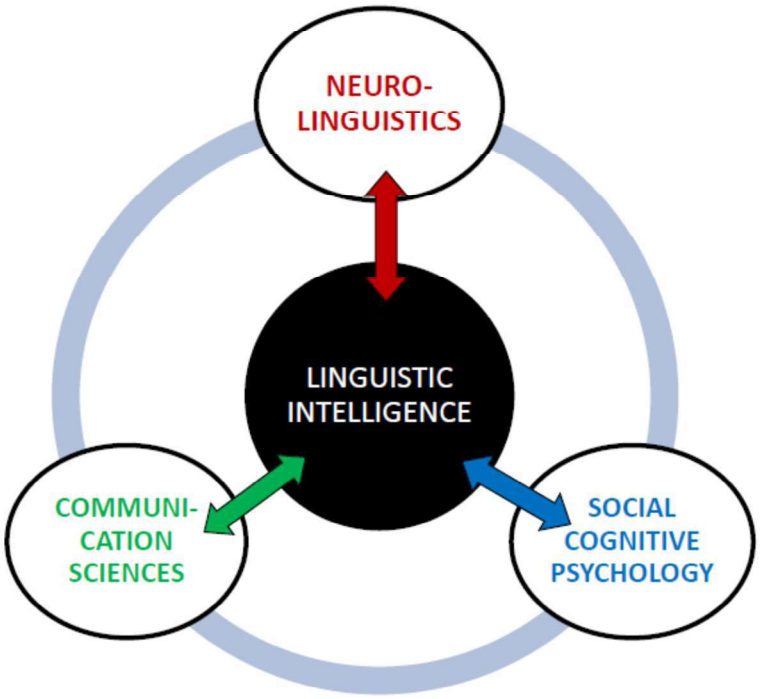


Figure 3: THE DISCIPLINES OF LINGUISTIC INTELLIGENCE



B. *THE PSYCHOLOGICAL SCIENCES OF COMMUNICATION*

Communication is defined as: the process that transmits messages from an issuer toa receiver, which in turn transmits a response to the issuer creating thus a continuous, dynamic and interacting communication cycle.

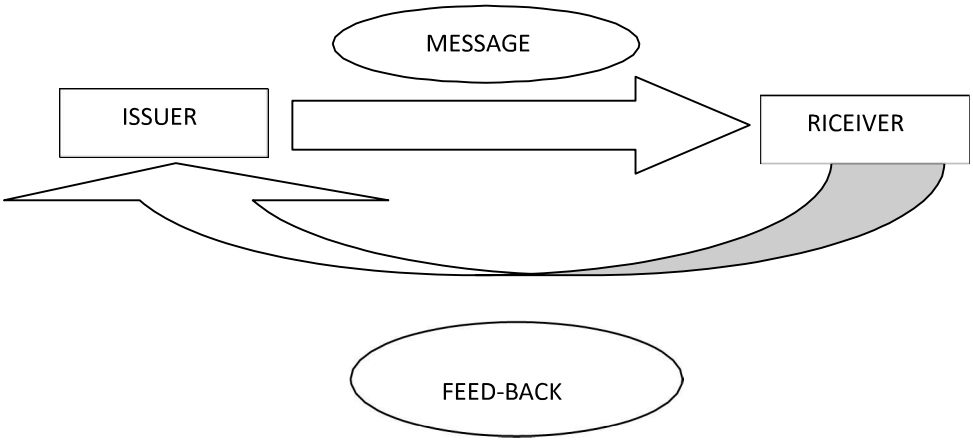


Figure 4: *The communication cycle*

The "communication cycle" is:

- The basic element on which dynamic interactive relationships between people are formed,
- The fundamental principle of the Communication Sciences.

Communication is the vital process for the psychic-mental-social development of people.

Communication is the process that involves the entire personality of each individual and the relationships it implements in the environmental-social-cultural-economic context.

Thus, communication is the *necessary and indispensable process of living socially*,which is carried out by people at every moment of the day.

In the first axiom of the Psychology of Communication, the theory of which wasdeveloped in the Palo Alto School (mainly by Paul Watzlawick along with Deavila Jackson andJanet Beavin in the book of 1967, "*Some Tentative Axioms of Communication.* In *Pragmatics ofHuman Communication - A Study of Interactional Patterns, Pathologies and Paradoxes*"), is stated "YOU CAN'T NOT COMMUNICATE", which concretely means: people always communicate-even when they remain silent.

Communication consists of messages composed of ideas, statements, directions, concepts, and mental representations, and is connoted by two different aspects (Watzlawick, Beavin, Jackson, 1967):

1. One aspect is characterized by the "information" of the cognitive contents that are transmitted/received
2. The other aspect is characterized by the emotionality of the transmitter and the receiver.

I would add a third aspect that determines the process of Communication, characterized by the flexibility and adaptability that each person possesses in the relational dynamic with theother.

The message that the issuing person transmits and the receiving person acquires acquiresis connoted by the *dynamic cognitive/emotional relationship* between people, as it depends:

a. from what he thinks, from what emotional state, from the modes and communication skillsthat individuals possess at that moment ("*here and now*"),

b. by what each person actually and concretely transmits and by his or her ability to listen toand receive the messages received;

c. from the social context, the goal, and the relationship that exists between the issuer and thereceiver.

Tuning between people is an indispensable characteristic in their dynamic relationship; often communication problems arise between two individuals, since there is no tuning betweenwhat the broadcaster thinks he has transmitted and what the receiver thinks has been expressed.

Numerous Communication Sciences studies state that to decrease and/or eliminate communication and relationship issues, is necessary for people to be able to convey messages having the following characteristics:

- The *clarity* and *simplicity* of what you communicate,
- The *coherence* and *logical organization* of concepts,
- The *effectiveness* and *meaningfulness* in conveying content,
- The *involvement* and *motivation* in the relationship between issuer and receiver.

Communication Sciences and Psychology of Communication study the *dynamic cognitive/emotional relationships* of people and the *ability to transmit/receive messages* expressed in communicative codes structured in symbols.

Symbols are the basic elements in the communication process, are processed mentally and then expressed socially to people capable of decoding and understanding the cognitive information contained and the psychic emotionality experienced.

C. LINGUISTIC INTELLIGENCE

Linguistic Intelligence is determined by typical forms of thinking and reasoning, which adopt particular mental abilities and specifics expressive competences with respect to other communication codes, such as the graphic-pictorial, the mimic-gestural, the musical, etc.

The structures, properties, and expressions of Linguistic Intelligence, that characterize theconception, construction and formalization of verbal or written communications betweenpeople, can be analysed on the basis of three different fields of studies:

A) PSYCHOLINGUISTIC: study the psychological characteristics and rules of codification and decoding of language.

The PsychoLinguistic allows to highlight the mental processes, cognitive abilities and linguistic procedures that individuals put in place during the conception-elaboration- description-definition of stories (*psycho-cognitive-pragmatic field of study of linguistic communication*).

PsychoLinguistics is connoted by 4 models: *Structuralist Cognitivism*, *Empirical Taxonomy*, *Generative Neurolinguistics*, *Linguistic Metacommunication*;

B) LINGUISTIC CREATIVITY: study the kind of original, personalizing, contextualized, and multifaceted solutions that people live and represent themselves on a mental level according to their Psychic World and Mental Universe (*psycho-ideative field of study of linguistic communication*).

The Creativity is determined by the mental processes of *Constructive Intelligence* and

Generative Intelligence.

The mental processes that characterize Creativity are: the *Global Perception*, the

Personalizing Insights, the Multifaceted Vision, the Cognitive Originality;

C) LINGUISTIC METACOMMUNICATION: study the types and modes people use to express thoughts and concepts that go beyond, beyond, what the cognitive and affective contents mean at the level of language and communicative message.

Metacomunicative Analysis enables us to understand and reflect on the personal beliefs, emotional processes, and social relationships of each person (*psycho-emotional and socio- cultural field of study of linguistic communication*).

Linguistic Metacommunication is determined by mental symbols (cultural symbols andpsychic symbols) that the person processes and expresses during communication.

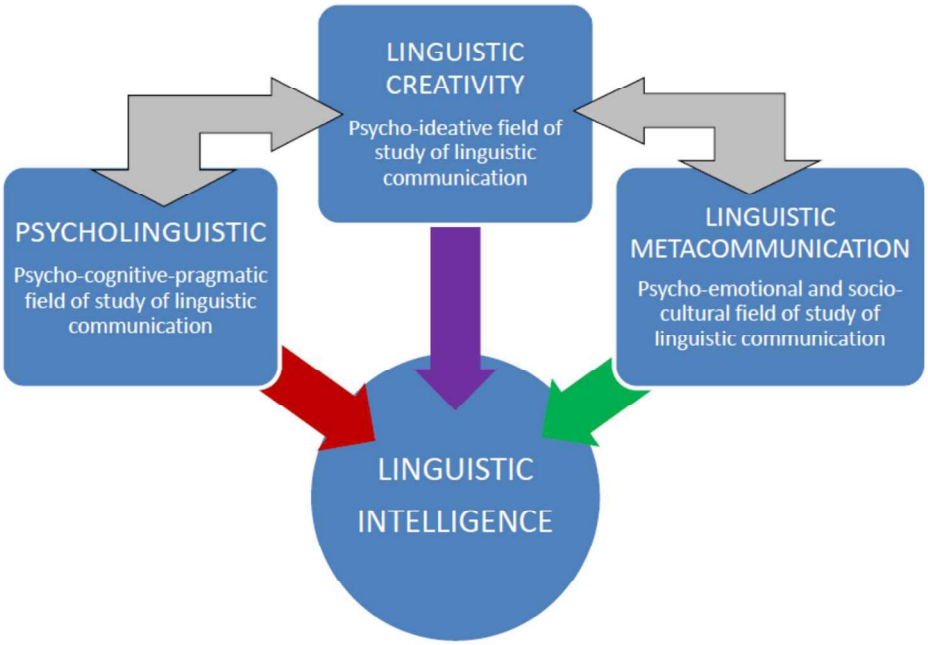


Figure 5: The fields of study of linguistic intelligence

D. PSYCHOLINGUISTIC

PsychoLinguistics is a discipline born to develop and to plan psychological research onlanguage, in particular the characteristics and rules of Communication Sciences during the perceptive learning processes, the cognitive processing processes and the social communicationprocesses.

PsychoLinguistics aims to study how the Mental Universe and the Psychic World of the individual are structured and expressed through language. (Presutti, 1980)

PsychoLinguistics studies and experiments how communication skills in the linguistic field are acquired and produced starting from the personal experience from the subjective experience and the specific abilities of an individual. It is a discipline that seeks to understand how words-phrases-stories are formed, how they are structured and how they are expressed while speaking and listening, writing and reading.

The main psycholinguistic studies can be classified in four different directions, which canbe classified in the following models:

1) the Structuralism Cognitive view of Ferdinand de Saussure (1916), exposed since theearly 1900s, which influenced the study of linguistic disciplines.

Saussure's theoretical model is characterized by a distinction between descriptive ("synchronic") language analysis and historical ("diachronic") language analysis.

Saussure highlights the importance of synchronic analysis of language and its components, since language is understood as an autonomous and timeless system.

Another fundamental reflection of Saussure is the distinction between "langue", that is the system of rules that govern the use of language in a particular social group, and "words", that is the concrete linguistic act that is carried out individually in a given context experiential.

While the "langue" is an abstract system based on social convention, the "word" is a specificact which is influenced by personal and cultural conditionings that form the individual and make it original, unrepeatable, a source of linguistic innovation. While the "langue" represents the social language of the entire community, the potential linguistic "treasure" towhich everyone can draw, the "words" is instead the individual creative potential that underlies the acquisition of language skills, which allow formulate sentences that are grammatically correct.

Jean Piaget (1923, 1947, 1968) takes up the theoretical model on the structuralism of Ferdinand de Saussure, inserting it within the psychogenetic evolution of children's mental abilities and the cognitive development of learning.

2) The Empirical Taxonomy view of Leonard Bloomfield (1933), whose

theoretical model is characterized by a taxonomy of language learning methods.
Bloomfleld founded Linguistics as an empirical and independent science from other disciplines, although it could not be studied separately from the influence of other disciplines.
Bloomfield has used in particular the principles of behavioural psychology applied to language, carrying out a taxonomic study of linguistic characteristics and rules, ignoring their deep and universal structures and eliminating any introspective reflection.
The linguistic units are considered regardless of their meaning, with the aim of systematically identifying the criteria for mutual connection and variation of the guiding elements. In this way the linguistic units and their combinations, in the formation of words- sentences-stories, are set within a defined and identifiable taxonomic level.
Giuseppe Francescato (1970) presents effectively the theoretical model on the conception ofBloomfield Linguistics

3) The Generative Neurolinguistic vision of Noam Chomsky (1957, 1966/68, 1975d), whosetheoretical model is characterized by the conception that language is structured in a formal way through the use of a "generative grammar" that allows:

- the possible expressions of a language, with consequent enrichment of the vocabulary andthe meaning of the words;
- the construction of a system of linguistic production rules, with the consequent acquisitionof the correct syntactic formalization;
- the explicit description of the linguistic structure of these expressions, with the consequentdevelopment of communication skills (speaking you learn to speak).

According to Chomsky's model, what is spontaneously generated by an individual's grammatical system must be able to be compared with the expressions of the reference linguistic group, which will judge which words and which sentences are acceptable.

4) the vision of Linguistic Metacommunication by Umberto Eco (1968. 1994), whose theoretical model is characterized by the identification of the point of view in which the "I narrating" is posed, which conceives and constructs the stories. (Eco, 1994 p. 19).
Eco highlights the psychological involvement of cognitive understanding of both the speaker-writer and the reader and the various dynamics that it causes to arise in theconception and construction of a story.
The "I narrating" of a communication can speak or write in the first person or describe usingreal or invented characters or tell a story that was told by a real or invented character, whichin turn can refer to a story exposed by a real or

invented character ... and so on, in a series ofmirrors that one is reflected in the other without being able to understand who the narrator is.
In fact, the narrator has a listener or an Ideal Reader (also called Implicit Reader, Virtual Reader, Metal lector) to whom he addresses himself and to whom he thinks of communicating his linguistic messages.
Correspondingly, even the listener or law constructs an Ideal or Implicit or Virtual Author who infers the type of "I narrating" of those who transmit linguistic communications.
In this way a Linguistic Metacommunication occurs between the narrator and the listener- reader that allows them to put themselves in the perspective of who communicates.

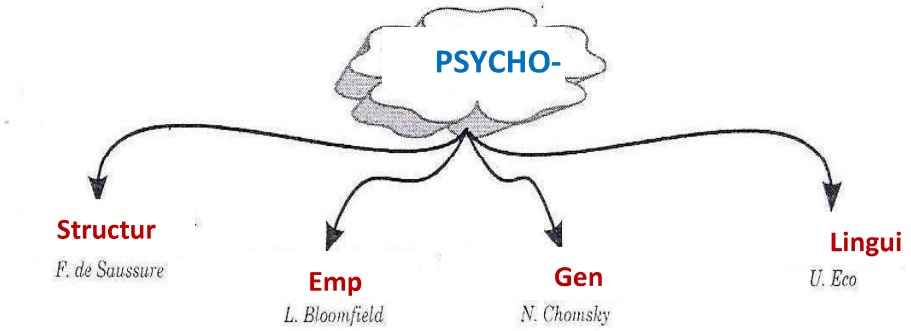


Figure 6: *The models of psicholinguistic*

E. LINGUISTIC CREATIVITY

Linguistic Creativity is determined by the psycho-cognitive-creative processes that useeither mental processing and different expressive strategies, for example, to visual creativity, musical creativity or motor creativity.

Language, having a communicative code different from that of images, sounds or body movement, necessarily implies that specific mental skills and processes are used. The difference in the code of communication and in the expressive potentials determinesthat the logical structuring of the reasoning is also different, even if the same mental processesand capacities are used.

To identify and develop Linguistic Creativity it is necessary to start from the language (code and expression) to be able to grasp the specific psycho-cognitive-ideational processes of *fantasy* and *mental imagination* that are determined both as constraints and as potentialities of expression. For example, the verbal linguistic fantasy is more magical and animistic than the writtenone because the spoken word is based on an auditory listening that arouses different sensationsfrom the visual listening of the written words ("verba volant, scripta manent"). Furthermore, linguistic fantasy is more abstract and conceptual than motor fantasy, which, instead, is more rhythmic and direct in the expression of messages.

Once highlighted and definite the field of linguistic creativity, its limits and its potential,it is necessary to enucleate the structures and mental processes that determine it.

First of all, Linguistic Creativity is characterized by the use of mental activities of

Linguistic Intelligence.

These mental activities follow two main structures: Constructive Intelligence andGenerative Intelligence.

The *Constructive Intelligence* is based on a progressive rationalization and extension ofthe initially conceived communication.

The *Constructive Intelligence* forms the basis for subsequent elaborations through a logical structuring of concepts that tends to build a complete, coherent and effective message.

The *Constructive Linguistic Intelligence* is characterized by a continuous abstraction andmental generalization of the expressed contents.

The structuring of mental activities of constructive intelligence is organized according tothe rules and characteristics of the *Logic of Knowledge* (left hemisphere of the cerebral cortex).(Presutti, 1980)

The *Generative Intelligence* is based on original intuitions characterized by fluidity of thought and global imaginations that often allow the creation of creative and multiformcommunications.

The *Generative Linguistic Intelligence* allows complex and dynamic ideas that allow thecreation of personalized concepts and express messages.

The structuring of the mental activities of generative intelligence are organized accordingto the rules and characteristics of the *Imagination Logic* (right hemisphere of the cerebral cortex). (Presutti, 1980)

It should be noted that the term *Irrationality* does not correspond to *Creativity*.

Irrationality is the intellectual process that is opposed to the rational ones, characterizedby the use of logical rules of reasoning in a manner opposite to that conventionally accepted.

Thus, *Irrationality* arises from the use of the rules of *Logic of Knowledge* with the functional characteristics of *Imagination Logic.*

Linguistic Irrationality arises from the autonomy of ideations, from spontaneous associations that express concepts and meanings without respecting the constraints of the linguistic code, but which play freely with logical rules, so as to grasp the eccentricity(absurdity, paradoxes, nonsense, hyperboles, etc.,).

Examples of irrational concepts can be:

- "human" = man-shaped hand,
- "kite" = large eagle kept on a leash,
- "vitamin" = an explosive life.

The mental processes (psycho-cognitive-ideational) that characterize Linguistic Creativity are:

1.the ***Global Perception***: mental process that tends to give a single linguistic definition of the "whole" without analysis and distinction of the parts that compose it, characterized by a subjective vision or by a heuristic and syncretic imagination based on an immediate mental word / image;

2.the ***Personalized Insights***: mental process based on an extemporaneous linguistic communication, characterized by a fluid and engaging ideation of the subject's experience based on the social stimulation and the interests of the individual;

3. the ***Multiform Vision:*** mental process of processing multiple messages starting from the same content, with different possible communications and different linguistic paths, based on the flexibility and independence of association of properties and concepts expressed;

4. the ***Cognitive Originality***: mental process of ideation based on the innovative transformation of knowledge already acquired, on a new organization and structuring of knowledge and / or information or on new knowledge placed in unusual areas.

Figure 7: PROCESSES AND STRUCTURES OF LINGUISTIC CREATIVITY

To achieve results and/ or obtain solutions characterized by Linguistic Creativity it is necessary and indispensable that all four processes are used or at least two of the four mental- cognitive-ideational mental processes (Cognitive Originality, Global Perception, Personalized Insights, Multiform Vision).

The 4 psycho-cognitive-ideational processes described above are the basic foundations ofany expression of Creative Intelligence (Linguistic Intelligence, Visual Intelligence, Motor Intelligence, Mathematical Intelligence).

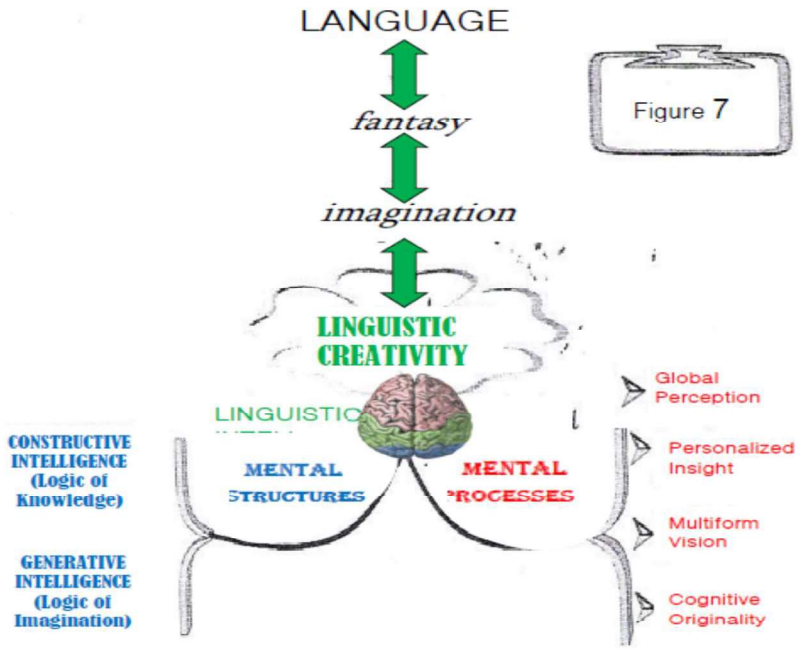


Figure 7: *Processes and structures of linguistic creativity*

F. LINGUISTIC METACOMMUNICATION

The mental activities of Linguistic Metacommunication are determined by communicative forms of thought and reasoning specific to Linguistic Intelligence.

In fact, the mental activities of Linguistic Metacommunication differ from the mental activities of other human communication codes, such as Visual Metacommunication and Mimic-Gestural Body Metacommunication, because language has specific neuromental rules and characteristics for its activation and use.

The basic elements of Metacommunication are mental symbols structured into *communication codes*, that can be understood by surrounding people and and that characterizethe values of the socio-cultural community to which one belongs.

The symbols that are formed and used in language take on different forms and characteristics than, for example, visual symbols (ideograms) and body symbols.

In addition, the different communicative characteristics and rules between verbal and written language must be considered, that determine the differentiation of linguistic symbols into two categories: the *orally expressed symbols* and the *written symbols*.

The rnetacommunicative processes (= *symbolic mental activities*) and metacommunicative analysis (= *reflection on symbolic communication*) are characterized by introspection and feedback (= *retroactive verification*) on the contents and messages of the Psychic World and the Mental Universe expressed by the individual. (Presutti, 1980).

Reflection on communicative messages transmitted allows us to develop new ways of using memory and imagination, to build new possibilities for thinking and actingto hypothesizenew strategies of reasoning and operating procedures.

Both verbal and written language have a fundamental importance in making the meta- communicative processes mature and evolve as it allows identifying and defining the conceptsdeveloped and the messages produced.

Studies on the formation of the symbol, that is on the development of the "semiotic function" during early childhood (Piaget, 1923, 1947) have been taken up by authors of the Piagetian School (Inhelder, Lezine, Sinclair, Stambak, 1972) who have tried to specify the evolutionary stages of the first symbolic behaviours in the child.

The appearance of symbolic behaviours can be identified:

- already starting from the second year of life of children observing the spontaneous manipulation of objects
- from the third year observing the spontaneous structuring of the symbolic games that childrencreate with their companions.

As described in the preceding paragraph, the human brain is structured on two cerebralhemispheres, in which the Metacommunication is processed and expressed through:

- the *content information*: regulated (encoded and decoded) by the Logic of Knowledge, that structures mental processes characterized by Constructive Intelligence, that elaborates andexpresses *cultural symbols*;
- the *subjective emotionality*: encoded and decoded by the Logic of Imagination, that structures mental processes characterized by Generative Intelligence, that processing andexpressing psychic symbols. (Presutti, 1980)

Metacommunicative processes are characterized by the conception and use of mentalsymbols, and in particular of psychic symbols and cultural symbols.

The acquisition, formation, development, and expression of *mental symbols* (*psychicsymbols* and *cultural symbols*) are determined by:

1. the rules and characteristics of Communication processes,
2. how brain structures and the mental strategies function, that determine and use mentalsymbols during metacommunicative relationships.

The definition and description of the properties and functions of *mental symbols*, composed of *psychic symbols* and *cultural symbols*, is the topic covered in a subsequent Psychology article.

References:

Adler M.J. (1983), *How to Speak How to Listen*, Mcmillan, New York; Touchstone, 1997; trad. It.: *Come parlare, come ascoltare*, Armando, Roma, 1984

Altieri Biagi M.L. (1987), *La grammatica del testo*, Musia, Milano

Berretta M. (1977), *Linguistica ed educazione linguistica*, Einaudi, Torino

Bertocchi D. et alii (1981), *Educazione linguistica e curricolo*, Bruno Mondadori, Milano

Bisogni E. (1987), *L'educazione linguistica*, SEI, Torino

Bloomfield L. (1933), *Language*, Holt, New York

Boncori L. (1980), *Educazione linguistica e sviluppo intellettuale*, SEI, Torino

Boschi F. (1977), *Psicologia della lettura*, Giunti, Firenze

Bruner J. S., Goodnow J., Austin G. (1956), *A Study of Thinking*, Wiley, New York; tr. It. *Il pensiero: strategie e categorie*, Armando, Roma, 1969.

Bruner J. S. (1966). *Toward a Theory of Instruction*; tr. It. *Verso una teoria dell'istruzione*, Armando, Roma, 1982.

Bruner J. S. (1968), *Processes of Cognitive Growth: Infancy*, Clark University Press, Worcester,MA; tr. It. *Prime fasi dello sviluppo cognitivo*, Armando, Roma, 1985.

Bruner J. S. (1973), *Beyond the Information Given. Studies in the psychology of knowing*, W.W.Norton and Company, New York; tr. It. *Psicologia della conoscenza*, Armando, Roma, 1976.

Bruner J. S. (1983), *Children's Talk: Learning to Use Language*, Oxford University Press, New York e Oxford; Norton., New York; tr. It. *Il linguaggio del bambino*, Armando, Roma, 1990.

Bruner J. S. (1986), *Actual Minds, Possible Worlds*, Harvard University Press, Cambridge, MA;tr. It. *La mente a più dimensioni*, Laterza, Roma - Bari, 1988.

Bruner J. S., Haste H. (1987), *Making sense: The child's construction of the world*, Methuen, New York; tr. It. *Making Sense. La costruzione del mondo nel bambino*, Roma, Anicia, 2005.

Calonghi C. (1968), *Cenni metodologici per favorire la comprensione del brano letto*, in"Scuola di base", XV, n.5, pp. 91-106

Calonghi C. (1969), *Lettura e sviluppo linguistico concettuale*, in "Scuola di base", XVI, n. I,pp. 71-101

Camaioni L. (1978), *Sviluppo del linguaggio ed interazione sociale*, II Mulino, Bologna
Castelfranchi C. - Parisi D. (1980), *Linguaggio, conoscenze e scopi*, Il Mulino, Bologna
Chomsky N. (1957), *Syntactic Structures* , Moulon & Co, Berlin (Germany), 1968; trad. It.: *Lestrutture della sintassi*, Bari, Laterza, 1970.
Chomsky N. (1964), *Current Issues in Linguistic Theory*, De Gruiter, Berlin (Germany), 1977, "The Logical Basis of Linguistic Theory", un documento che Chomsky ha presentato alnono Congresso Internazionale dei Linguisti tenutosi a Cambridge, nel Massachusetts nel 1962
Chomsky N. (1965a), *Aspects of the Theory of Syntax*, MIT Press, Cambridge (Massachusetts);trad. It.:
Chomsky N. (1965b) *Cartesian Linguistics*, Harper and Row, New York; trad. It.: *Linguistica Cartesiana. Un capitolo nella storia del pensiero razionalista*, Mimesis, Sesto San Giovanni, 2017
Chomsky N. (1968a), *Language and Mind*, Cambridge University Press, , Cambridge (Massachusetts); trad. It.: *Il linguaggio e la mente*, Bollati Boringhieri, Torino, 2011
Chomsky N. (1968b), *Alcune costanti della teoria linguistica*, in *I problemi attuali dellalinguistica*, Milano, Bompiani, Milano
Chomsky N. (1966/68), *Saggi linguistici,* Boringhieri, Torino La pubblicazione è composta dai seguenti 3 volumi:
I, *L'analisi formale del linguaggio*, 1969.
II, *La grammatica generativa trasformazionale*, 1970.
III, *Filosofia del linguaggio. Ricerche teoriche e storiche*, 1969.
Chomsky N. (1975a), *Reflections on Language*, Pantheon Books, New York; trad. It.: *Riflessionisul linguaggio*, Einaudi, Torino, 1981.
Chomsky N. (1975b) *The logical structure of linguistic theory*, Plenum Pub. Corp., Springer, Berlin (Germany), Edizione rivista del libro: (1955) *Natural language syntax*; trad. It.: *Laconoscenza del linguaggio. Natura, origine e uso*, Il Saggiatore, Milano,1989
Chomsky N. (1975c), *Problemi di teoria linguistica*, Boringhieri, Torino
- Chomsky N. (1975d), *La grammatica trasformazionale. Scritti espositivi*, Boringhieri, Torino
Chomsky N. (1977), *Saggi di fonologia*, Boringhieri, Torino
Chomsky N. (1980), *Le strutture della sintassi*, Laterza, Bari
Chomsky N. (1981), *Lectures on Government and Binding*, (Studies in generative grammar). ThePISA lectures, Foris Publications; Walter de Gruyter, , Editore Mouton De Gruiter, Berlin(Germany), 1993; Conference and workshop held at the (Conferenza e lavori di gruppo fatti alla) Scuola Normale di Pisa, Pisa (Italy) nel 1979.

Chomsky N. (1987), *Language and problems of knowledge. The Mangua Lectures*, MIT Press, Cambridge (Massachusetts); Trad. It.: *Linguaggio e problemi della conoscenza*, Bologna,Il Mulino, Bologna, 1991.
Cornoldi C. - Colpo G. e il gruppo MT (1981), *La verifica dell'apprendimento della lettura*,Firenze, OS, Firenze
Cornoldi C. et alii (1985), *La prevenzione e il trattamento delle difficoltà di lettura e discrittura*, OS, Firenze
De Mauro T. (1966), *Introduzione alla semantica*, Laterza, Bari
De Mauro T. (1977), *Scuola e linguaggio*, Editori Riuniti, Roma
De Saussure F. (1979), *Corso di linguistica generale*, Bari, Laterza,
De Saussure F. (1916), *Corso di linguistica generale,* Laterza, Bari, 1968
Deva F. (1976), *Grammatica funzionale e arricchimento del vocabolario*, La Nuova Italia,Firenze
Deva F. (1982), *Processi di apprendimento della lettura e della scrittura*, Firenze, La NuovaItalia
Eco U. (1968), *La struttura assente*, Bompiani, Milano
Eco U. (1994), *Sei passeggiate nei boschi narrativi*, Bompiani, Milano
Eynard R., *La lettura nella scuola dell'obbligo*, Giunti & Lisciani, Teramo, 1983
Ferreiro E., Teberosky A. (1985), *La costruzione della lingua scritta nel bambino*, Giunti-Barbera, Firenze
Formisano M., Pontecorvo C., Zucchermaglio C. (1986), *Guida alla lingua scritta*, Ed.
Riuniti, Roma
Francescato G. (1970), *Il linguaggio infantile. Strutturazione e apprendimento*, Einaudi,Torino
Gardner H. (1983), *Frames of Mind: The Theory of Multiple Intelligences*, Basic Books, New York; *Formae mentis. Saggio sulla pluralità dell'intelligenza*, Feltrinelli, Milano, 1987,2002
Gardner H. (1988), *La nuova scienza della mente. Storia della rivoluzione cognitiva*, Feltrinelli,Milano
Gardner H. (1993), *Multiple Inttelligences. The Theory in Practice,* Basic Books, New York; trad.
It.: *Intelligenze multiple*, Anabasi, 1994
Gardner H. (1999), *Intelligence Reframed. Multiple Intelligences for the 21st Century, BasicBooks,* New YorkGardner H. (2004), *Changing Minds: The art and science of changing our own and other people'sminds, Harvard Business School Press, Harvard*
Gardner H. (2005), *Educazione e sviluppo della mente. Intelligenze multiple e apprendimento*,Edizionoi Erickson, Trento
Gardner H. (2006), *Multiple Intelligences: New Horizons in Theory and Practice, Basic Books,New York*

Gardner H. (2013), *with Davis, K,. The App Generation: How Today's Youth Navigate Identity, Intimacy, and Imagination in a Digital World. Yale University Press.*; trad. It.: *Generazione App. La testa dei giovani e il nuovo mondo digitale*, trad. di Marta Sghrinzetti, Feltrinelli, Milano, 2014

Herriot P. (1982), *Language & Teaching: A Psychological View,* Taylor & Francis Ltd, Routledge, London, 2014; Trad. It.: *Lingua, insegnamento e psicologia*, Zanichelli,Bologna, 1980

Kess J.F. (1979), *Introduzione alla psicolinguistica*, Franco Angeli, Milano

Inhelder, B., Lezine, I., Sinclair, H. & Stambak, M. (1972): Les débuts de la fonction symbolique. Archives de Psychologie, 41, 187-243.

Jakobson R. (1971), *Il farsi e il disfarsi del discorso*, Finaudi, Torino

Lentin L. (1973), *Il bambino e la lingua parlata*, Armando, Roma

Leont'ev A.N. (1959), *Problemy razvitija psichiki,* Mir, Moskva; *Problems of the Development of the Mind*, 1959 (1st ed.), 1965 (2nd ed.), 1972 (3rd ed.), 1981 (4th ed.); Progress Publishers. Moscow; trad. IT:, *Problemi dello sviluppo psichico,* Ed. Riuniti, Roma, 1976

Leont'ev A.N. (1972), *Psicolinguistica*, Editori Riuniti, Roma

List G. (1980), *Introduzione alla psicolinguistica*, La Scuola, Brescia

Lurija A.R., (1951), *Neuropsicologia del linguaggio grafico*, Messaggero, Padova, 1984

Lurija A.R., (1959), *Linguaggio e comportamento*, Editori Riuniti, Roma, 1977

Lurija A.R., (1960), *Il bambino ritardato mentale*, Zanichelli, Bologna, 1978

Lurija A.R., Yudovich F.J. (1968), Linguaggio e sviluppo dei processi mentali nel bambino,Giunti-Barbera, Firenze, 1975

Lurija A.R., (1974), *Neuropsicologia e neurolinguistica*, Editori Riuniti, Roma, 1974

Lurija A.R., (1975a), *Problemi fondamentali di neurolinguistica*, Roma, Armando, Roma, 1978

Lurija A.R., (1976), *Storia sociale dei processi cognitivi*, Giunti-Barbera, Firenze, 1976

Marchese A. (1971), *Didattica dell'italiano e strutturalismo linguistico*, Principato, Milano

Morris C., *Lineamenti di una teoria dei segni*, Paravia, Torino, 1970

Negru, M. (2012). *Vocabulary acquisition in bilingual children as a link between linguistic and cognitive development*.Arad: Educatia-Plus/Journal Plus Education, Editura Universităţii „Aurel Vlaicu", Vol. VIII, No. 2, ISSN: 1842-077X , pp. 191-196.Oleron P., *Linguaggio e sviluppo mentale*, Giunti-Barbera, Firenze, 1975.

Piaget J. (1923), *Il linguaggio e il pensiero del fanciullo*, Editrice Universitaria, Firenze, 1955.

Piaget J. (1937a), *La costruzione del reale nel bambino*, Firenze, La Nuova Italia, 1973.
Piaget J. (1937b), *Dal bambino all'adolescente. La costruzione del pensiero*, La Nuova Italia,Firenze, 1969.
Piaget J. (1947), *Psicologia dell'intelligenza*, Editrice Universitaria, Firenze, 1952.
Piaget J., Inehelder B. (1966), *La psicologia del bambino*, Einaudi, Torino, 1970.
Piaget J. (1967), *Logica e psicologia*, La Nuova Italia, Firenze, 1969.
Piaget J. (1968), *Lo strutturalismo*, Il Saggiatore, Milano, 1968.
Presutti F. (1980), *L'Universo Mentale. Modello Neuromentale del XXI secolo*, I.S.P.E.F.,Roma, 2018
Presutti F. (1984), *L'Universo Cosciente. Come pensa l'Uomo del XXI secolo*, I.S.P.E.F.,Roma, 2020
Presutti F. (1990), *Psicologia della conoscenza e dell'apprendimento*, Aleph, Roma
Presutti F. (1992), *Il Mondo dei Processi Mentali*, I.S.P.E.F., Roma, 2021
Presutti F. (1992), *Test Artistico-Creativi. I Test Educativi ISPEF*, I.S.P.E.F., Roma, 2012
Presutti F. (1994), *Psicolinguistica, Creatività Linguistica e Metacomunicazione nelle Storie dei Test "Figure Nascoste" e "Figure Creative"*, I.S.P.E.F., Roma, 2015
Presutti F. (1994), *Creatività Linguistica. Storie con i Test "Figure Creative"*, I.S.P.E.F.,Roma, 2015
Presutti F. (1994), *Creatività Linguistica. Confronto tra le Storie con i Test "Figure Nascoste"e "Figure Creative"*, I.S.P.E.F., Roma, 2015
Presutti F. (1994), *Creatività Visiva. Ideazione con i Test "Figure Nascoste" e "FigureCreative*, I.S.P.E.F., Roma, 2015
Presutti F. (1994), *I Processi Psico-Cognitivo-Ideativi della Creatività Visiva. Ideazione coni Test "Figure Nascoste" e "Figure Creative*, I.S.P.E.F., Roma, 2015
Presutti F. (1994), *L'intelligenza dei bambini di 6-7 anni. Analisi e valutazione dei Test"Figure Nascoste" e "Figure Creative*, I.S.P.E.F., Roma, 2015
Presutti F. (1994), *I Processi Psico-Cognitivo-Ideativi dei bambini di 6-7 anni. Analisi evalutazione dei Test "Figure Nascoste" e "Figure Creative*,
Presutti F. (1994), *Test "Figure Nascoste" e "Figure Creative". I fattori per valutarel'Intelligenza e la Creatività*, I.S.P.E.F., Roma, 2015
Presutti F. (1994), *Strumenti per l'Intelligenza e la Creatività. I criteri di applicazione deiTest "Figure Nascoste" e "Figure Creative"*, I.S.P.E.F., Roma, 2015
Rodari G. (1973), *Grammatica della fantasia*, Einaudi, Torino

Simone R. (a cura di) (1979), *L'educazione linguistica*, La Nuova Italia, Firenze

Slobin D.l., *Psicolinguistica*, La Nuova Italia, Firenze, 1975

Titone R. (1979), *Il linguaggio nell'interazione didattica*, Bulzoni, Roma

Tough J., *Ascoltare i bambini quando parlano*, Emme Edizioni, Milano, 1975

Vygotskij L.S. (1934), *Myshlenije i rech*,; in Leont'ev A.N., Lurija A.R. (1956), *Izbrannyie psichologiceskije issledovanija*, Accademia delle Scienze Pedagogiche della Repubbliche Sovietiche Federale Solcialista Russa, Moskva; trad. It.: *Pensiero e linguaggio*, Giunti- Barbera, Firenze, 1966; trad. ENG: *Thouught and Language*, MIT Press, Chicago, 1962

Vygotskij L.S. (1960), *Istorija razvitija vyssih psihiceskih funktcij*, Accademia delle Scienze Pedagogiche della Repubbliche Sovietiche Federale Solcialista Russa, Moskva; ttrad. It.*Storia dello sviluppo delle funzioni psichiche superiori e altri scritti*, Giunti-Barbera, Firenze, 1974

Vygotskij L.S (1966), *Lo sviluppo psichico del bambino*, Editori Riuniti, Roma, (1973)

Vygotskij L.S. (1972), *Immaginazione e creatività nell'età infantile*, Roma, Editori Riuniti;1990, 2010.

Wilkinson A., *Fare scuola col linguaggio*, La Nuova Italia, Firenze, 1981

Wilkinson A., *Educare al linguaggio*, La Nuova Italia, Firenze, 1981

Watzlawick, P., Beavin-Bavelas J., Jackson D. (1967), *Some Tentative Axioms of Communication.* In *Pragmatics of Human Communication - A Study ofInteractional Patterns, Pathologies and Paradoxes*. W. W. Norton, New York, 1967; trad. It.: *Pragmatica della comunicazione umana*. Astrolabio, Roma, 1971

Watzlawick P., Weakland J.H., Fisch R. (1974), *Change: Principles of Problem Formation and Problem Resolution*, trad It.: *Change: sulla formazione e la soluzione dei problemi*, Astrolabio, Roma, 1974.

Watzlawick P. (1976), *How Real Is Real?*, trad. it.: *La realtà della realtà. Confusione,disinformazione, comunicazione,* Roma, Astrolabio, .1976

Watzlawick P. (1977a), *The Language of Change,* trad. it. (2013), *Il linguaggio del cambiamento. Elementi di comunicazione terapeutica*. Milano: Feltrinelli, 2013

Watzlawick P., Weakland J. H. (1977b), *The Interactional View: studies at the Mental Research Institute,* Palo Alto, 1965-1974, trad.It.: *La prospettiva relazionale*. *I contributi del Mental research institute di Palo Alto dal 1965 al 1974,* Astrolabio,Roma, 1978

Watzlawick P. (1983), *The Situation Is Hopeless, But Not Serious: The Pursuit of Unhappiness,* trad. it.: *Istruzioni per rendersi infelici,* Feltrinelli, Milano, 2013.

Watzlawick P. (a cura di). (1984), *The Invented Reality: How Do We Know What We BelieveWe Know? Contributions to Constructivism,* trad. it. *La realtà inventata: contributi alcostruttivismo*, Feltrinelli, Milano, (2013)

Watzlawick P. (1986), *Ultra-Solutions, or, How to Fail Most Successfully*, trad. it., *Di bene in peggio. Istruzioni per un successo catastrofico,* Feltrinelli, Milano, 2013.