

From an Individual to an Intersubjective Perspective: Reflections for Foreign Language Acquisition

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Abstract

This study will present the results of neurobiological research, in the light of which an intersubjective vision of language learning takes shape. In the field of language teaching, synchronization of the right hemisphere between two brains in communication helps to shift the focus from an individual or subjective vision of learning onto an interpersonal and dynamic one. Therefore, after highlighting the neurobiological and interpersonal mechanisms inside communication in the first part of the article, an analysis of the edu-linguistic repercussions will follow, so that selected teaching strategies can activate more effective ways of working for language acquisition.

Keywords: Language acquisition, Intersubjective communication, Interconnectivity of the right hemispheres, Post-communicative approaches, Experiential learning in foreign language education

1. A Student Among Students

Studies by Dunbar and Schultz (2007) hypothesize that the brain has a social nature. The need for sociability and, with it, to socialize has directed humans to evolve in terms of shared and negotiated actions (Fantasia et al. 2014) aimed at satisfying the primary needs of the group to which the individual belongs. Language learning, therefore, is the result of this constant and dynamic relationality that pushes the individual to interaction and mediation. The development of interpersonal skills through linguistic experiences determines the development of the human brain. This development is based on a continuous expansion of the mechanisms of perception and action that the brain activates by experiencing the world (Holt-Lunstad et al. 2015).

In this direction, Hari et al. (2015) argue that verbal and non-verbal communication is dynamic and bilateral, as each of the participants in the communicative exchange activates a system of regulation and adaptation through linguistic and extralinguistic behavior.

From this perspective, the research of Li et al. (2020) highlights that collaborative activities determine a significant neuronal synchronization between group members. Synchronization is established between the right hemispheres of the brain, resulting in a more effective linguistic action in relation to the assigned task. In this scenario, the student is committed to establishing an interpersonal dialogue, is involved in the activity and concretely participates in carrying out the tasks. From this intersubjective perspective emerges an individual engaged in a real social interaction within a learning environment that functions to increase and refine his soft skills. The student is therefore active and reactive to the communication situation aimed at dealing with a task. The student's responsiveness relates to his role and his full involvement in the interaction with another individual.

For the interaction to take place, it is essential that the linguistic/cultural stimulus is motivating, authentic, clearly formulated and close to the psychological reality of the learners.

In this regard, studies by Blake and Shiffrar (2007) demonstrate that the interaction between participants becomes dynamic only via an authentic input such as a video rather than static images/photos, since film or news clips and interviews etc. stimulate the student towards observation in action, guided exploration, information gathering and shared analysis. It is therefore a matter of multimodal material whose didactic value has already been widely treated by the language teaching literature. As it lacks eye contact and the extra-linguistic aspect crucial for regulating the dialogue, the use of a social network chat facility, such as that of WhatsApp, for language teaching activates a simple reaction to an input, rather than achieving meaningful communication.

2. Neurobiological Assumptions for an Intersubjective View of Language Learning

The organization of the learning brain has been one of the focuses of neuroscience studies. The studies that have arisen in this area have had an important impact on language teaching, offering a series of assumptions for language acquisition in which the role of the individual, with his emotional, affective and cognitive component, is central. In this respect, affective and developmental neurobiology research started to explore the interior of the brain in order to understand which regions of this organ were specifically activated during cognitive and sensory tasks (Schore 2005). A decade earlier, the studies of Derryberry and Tucker (1994) highlighted the different role of the two hemispheres; the right characterized by attention to global detail while the left focused on local detail. Regarding this, Danesi (2010) has proposed a dynamic theory of language acquisition based on the involvement of both hemispheres, based on the principle of directionality and bimodality. The recognition of such a model has proved to be very useful for promoting the type of teaching materials that respect the functional mechanisms of the brain. Therefore, regardless of the operating model used by the language teacher, the material must be organized according to precise stimuli towards global observation and then to narrow analysis of the linguistic aspect aimed at a general

comprehension and deeper understanding of the meaning of the text and for its elaboration by the learner of his own meaning of the content under study. From this didactic perspective, the role of each of the two hemispheres in the organization of information emerges. According to Blonder et al. (1995) the right hemisphere plays a fundamental role in the recognition of non-verbal, spontaneous and emotional communication; for global comprehension of the text and for prosody.

According to Van Lacker and Cumming (1999), however, the left hemisphere is dominant in the mediation of linguistic behavior, dealing with explicit linguistic behaviors, with explicit reflection on verbal content; it distinguishes phonemes and syllables. From this we deduce:

- a) that there is a lateralization of mental functions and, consequently, a differentiated specialization of the two cerebral hemispheres (Corballis 2017);
- b) that the two hemispheres receive information at different times and process language differently, according to the peculiarities that distinguish each hemisphere. Regarding this, neuroscience has indicated a dominant function for all forms of language in the left hemisphere;
- c) that emotions come before linguistic detail. According to Sergent (1995), global perception is followed by analytical comprehension, for which, being able to discriminate local detail, the left hemisphere is responsible; and
- d) that all forms of deep (and verbal) language are processed by the left hemisphere.

Research by Stolk et al. (2014) underlines that in intersubjective communication, the work of processing new information and its meaning is processed by the right hemisphere and not by the left. In fact, the sharing of practices and symbols during face-to-face communicative interaction recorded a neuronal synchronization between the limbic structures of the communicating individuals. Thus, in a situation of verbal and non-verbal communication, the activated neuronal regions are located in the right hemisphere of the brain, which modulates the ambiguity of the message to reach a full understanding of the communicative intentions of each recipient. The results of this research therefore support a learning model in which the right hemisphere plays a critical role in social interaction processes, since the analysis of hemispheric connectivity carried out by the researchers shows a greater activation of the right brain region in social cognition. Therefore, in line with the studies of Ross and Monnot (2008), the right hemisphere is shown to be crucial for the development of linguistic and communicative competence, as well as for the psychological well-being of the learner.

3. Neurobiological Mechanisms of the Right Hemisphere

As the structure and functioning of the brain are shaped by the interactions that the individual has with the environment, the experience that the person has regulates his human development.

The focus of language teaching has therefore shifted to the subject who learns, to the internal development of his mind, to the psychological and affective states of the learner. However, the student should not learn in an empty classroom or on an individual basis. The learner

interacts with the environment and regulates his affective state on the basis of numerous external factors. The learning environment helps to mediate the adaptation to the learning experience in which other individuals participate. Therefore, the linguistic experience is primarily social and thus directed towards socialization through the study of the second or foreign language.

Consequently, the study of languages will have to pay attention to the relational psychology not only of the individual but of all the learners. First of all, learning is building mutual communication between peers, creating a context that is relational, of exchange and of specific changes that affect the individual and the people with whom he shares this study experience within a specific environment. Therefore, students enter into relationships and, during their social interaction, they exchange verbal and non-verbal thoughts and actions. Dumas et al. (2010) underline that in social interactions the right temporoparietal cortex tends to synchronize with the temporoparietal cortex of the other subject. This is a synchronization process involving attentional states and information processing for the purpose of empathic understanding.

When we talk about communication between two or more brains, we are referring to verbal and non-verbal communication modalities. The linguistic and extralinguistic code (kinesics, proxemics, prosody, etc.) are tools for understanding and regulating the response to a dialogue in which one participates. Offering scientific support to the idea that there is interactive regulation means confirming the hypothesis that the brain has an evolutionary and social nature that is located in the right side. During communication between subjects in contact it establishes a lateral synchronization of the right hemispheres between the speakers. Mediation and negotiation are therefore processed by the right side of the brain, which tries to tune in with the hemisphere of the other speaker in order to create and give meaning to the dialogue.

The studies by Stolk et al. (2014) indicate that interpersonal synchronization of the right hemispheres occurs only between individuals who have a history of communication in common, hence the need under the didactic profile of how to cement the class group, the conditions of access to knowledge, the methods of working in the classroom to solve the different assignments and to work on the task in hand.

In this direction, research conducted by Di Bernardi Luft et al. (2022) confirms that the tuning of the two right hemispheres in a communicative situation is associated with effective social interaction. Therefore, the teacher will have to pay attention to the construction of a training scenario oriented towards goals of socialization and competence, of cooperative work aimed at putting in place shared learning experiences. This means connecting the students' learning experiences with teaching situations that are shared and sub-divided into skills work.

4. Interconnectivity of the Right Hemispheres in a Communicative Situation

Thanks to improvements in neuroimaging techniques, neurobiology has focused on the functional connectivity between interacting brains. Regarding this, the research perspective

focuses on the quantity of interactions that are established between two communicating brains in order to achieve greater understanding of neuronal activity taking place in an interpersonal situation (Ray et al. 2017). Therefore, in accordance with the studies of Balconi and Fronda (2020), the new scientific paradigm no longer looks at the single brain but, on the contrary, takes into consideration the methods of interaction between multiple brains/people who establish a dialogue.

From these first considerations, we derive a new and different epistemological framework for language teaching, based on an intersubjective, interpersonal and dynamic vision of language learning. This process is social in nature and is centered on the dynamic relationship between learning individuals. Therefore, the focus is on the subjects and not on the single individual. The relational construct of this language teaching vision has a neurobiological foundation concentrated on the interaction between multiple interacting brains, and on the functioning of each of them when communicating (Gainotti, 2019). Therefore, the focus of neurobiological research aims to observe and study the mechanisms that are established between two communicating brains, identifying which brain regions are activated during the interpersonal situation.

In this regard, studies and research by Schore (2017) have highlighted that in the construction of interpersonal communication, synchronization occurs between the right hemisphere of brain one and the right hemisphere of brain two. It is then claimed that the connectivity between these specific regions of the brain contributes to the development of an organized dialogue in which each individual participating in the situation tunes in on an emotional level with the others, regulating their own affective and cognitive state. This synchronization between the parties involves social attention and the level of participation and pleasure (arousal) in the dialogue in terms of response. In relation to these studies, research by Dumas et al. (2010) confirms that interacting brains are active and inclined to modify their own action in order to regulate dialogue.

The sharing of this state is of an emotional type, therefore the regulation of the response based on the evolution of the dialogue is of an affective nature, being aimed at mutual understanding between the speakers participating in the communicative exchange.

The intersubjective approach has didactic implications for language teaching. Firstly, as the rich language teaching literature on the subject of cooperative approaches has already underlined, the language learning process is social and not individual. The student interacts first of all with the learning environment. Furthermore, the student is not alone in class but studies with other people, therefore he should share with them an experience that is, above all, social and interactive, where language is a tool of thought and communication, i.e. of construction and maintaining social relationships. Consequently, the working methods should put the learner in a position not to isolate himself but to dialogue with his partner and with the work group to which he belongs for the development and realization of the task. In short, the learner is in continuous interaction both with the environment and with other individuals. Regarding this, it can be argued that language learning should be conceived in a holistic way,

as a dynamic and interactive experience. Communication does not take place in a vacuum but is always situated so that any form of dialogue is by its nature intentional and interactional.

5. Methodological Implications for Language Teaching

From this premise of a scientific nature, therefore, an epistemological framework of language education takes shape which, based on the functional integration of the right hemispheres, no longer considers the single learner (learner-centred teaching) but the interacting students, hence, interpersonal teaching. The student does not learn individually or in isolation but, on the contrary, is connected with the other individuals with whom he interacts, sharing a plan of actions and solutions useful for giving meaning to his study experience. It is therefore a perspective that attributes importance to the learning scenario, to the communication between subjects, to the experience they practice together and share, to the emotional and affective relationships that regulate their relational mechanisms, according to the operating methods of the right hemisphere. On a didactic level, planning makes use of a cooperative management method of the activities, paying attention to the conditions of group formation and to the level of competence reached by each member. Students mobilize together to build, integrate and modify knowledge by dynamically reworking it within real situations. These cooperative working methods provide everyone with the indications for tackling the task; the roles and responsibilities assumed by each learner in the pair and in the group are fundamental for building the sense of experience where the contribution of each one highlights the positive interdependence that has been established, as their action of reflection and discovery is oriented towards dealing with the task. Immordino-Yang (2017) argues that learning is dynamic, social and context-dependent. Therefore, it is the people who learn that make the difference: their way of thinking, their way of feeling, of connecting and interacting are all fundamental aspects in the language acquisition process. Consequently, the teacher will have to adapt a teaching strategy based on particular traits:

- a) a complex, interactive vision of language: first of all, language cannot be taught without the culture that connotes it, since each word extends its own universe of cultural and socio-cultural meanings and uses outwards. Since language serves to establish interactions and coexisting cultural values in a given social context, it has a dynamic, multi-collective intercultural value (Kaliska 2022:321). A similar perspective of the binomial language-culture translates into a very broad methodological spectrum of teaching/learning in the context of linguistic education where, however, languages must be studied and understood in their expressive and cultural richness. Two implications arise from this consideration: (a) each aspect of the language is part of a system interconnected by reciprocal properties and relationships, so that a linguistic system, rather than separate or single aspects of the language, is taught in the classroom; (b) the language teaching objective is communicative competence, which not only allows socio-pragmatic effectiveness to be achieved but goes beyond this definition; and

- b) the methodological perspective affects the whole class, necessarily involving all learners in exploring ways of researching and presenting the most relevant information from an affective and cognitive point of view.

The didactic choice on a planning and tactical level aims to connect multiple brains, creating synergies, affinities through learning methodologies and group activities in which students build interpersonal relationships, negotiating together the most important criteria and aspects to deal with the task. The teaching activities must be based on the activation of a real and significant experience for the students, so that they elicit pre-knowledge close to this experience, simultaneously activating socio-emotional emotions with which to establish a connection with the partners. In the following paragraphs, therefore, we will focus on the post-communicative methodologies that favor both the synchronization between the right hemispheres and a socio-emotional involvement of the student who will have to demonstrate the ability to use mediation and negotiation strategies appropriately and pertinently, in line with the educational goals and objectives of the Common European Language Framework.

6. Post-communicative Approaches

The functioning modes of the brain described above constitute the neurobiological basis for post-communicative methods, characterized by collaborative learning and the development of soft skills and critical thinking.

In line with studies by Simion (2022), many of these methods have their epistemological roots in the communicative approach. Despite the fact that there are, depending on context, multiple variations in implementation, Littlewood's studies (2011) show it is possible to outline a taxonomy common to the individual methodologies that fall within the post-communicative approach:

- a) Teaching, both at the macro-curricular level and at the tactical level, has an edu-linguistic function, since it aims to put students in the best conditions to do, act and be. Furthermore, teaching has an edu-linguistic purpose whereby what is learned is just as important as how it is learned. This implies building a trans-disciplinary and intercultural project for each class to guide the student in how to find useful information and how it applies in real-life contexts (Al- Khamisi, Sinha 2022). In doing so, the student must focus first of all on the content, on the message, as well as on formal accuracy;
- b) language learning is rethought as a state of continuous dialogue, thanks to the construction of a learning scenario possible for everyone, based on narrative practices, on questions, on the freedom to express oneself and to get involved as subjects in training. Consequently, the teaching aims to verify the learning results produced by a continuous interaction in the language of the students on topics that have been considered relevant and significant. Therefore, the post-communicative methodologies propose certain themes strictly connected with the priorities of the students, who are made responsible for their own success or failure in relation to

clearly set and shared educational objectives, and to concrete experience. In the case of children, of what they have done and how they managed to complete it;

- c) language teaching and learning are conceived as a social action, which means that one learns with, and together with, others and not in isolation. Therefore, teaching is centered on people's learning perspectives, it is a socio-constructive and intercultural project, bringing the thematic path back to issues of cooperation between peers, identity and valuing of differences. The essential thrust of this vision is given by an edu-linguistic vision of language teaching that finds form in the realization of tasks, research and projects: these are stimulating activities that require skill, understanding, reasoning, logic and work through the language, which therefore becomes an instrument of thought and socialization. The focus, therefore, is the use of the language aimed at the meeting point, the examination of each individual study process and project, the elaboration of the questions, the survey, the selection and the research. The second or foreign language to be used, in fact, concerns one's dialogue with oneself and with others, so it will always have a dialogic, interpersonal, educative and professionalizing nature; and
- d) post-communicative methodologies place the understanding of content that addresses the needs of the learner at the center of the acquisition process; therefore, assessment of the content passes through formative and continuous evaluation.

A didactic situation of this type turns out to be more involving for the student, who is placed in front of a wide range of inputs; is led to process the stimulus and to find an expressive method to be able to interact in the classroom and solve the linguistic problem.

Methods that have a common edu-linguistic vision, are intended for the classroom and which place learners in mutual interaction include:

- a) Debate: according to Želježič (2017:42) a debate means a communicative event structured and regulated around a motion capable of producing a confrontation between two opposing visions. Through the debate, two sets of perspectives, values and visions are established, with one supporting the motion and the other opposing it. Therefore, the aforementioned method has an interactive nature, since it favors learning built in a social way. In this regard, Akerman and Neale (2011:48) describe the implementation methods in this learning context; first, constructive controversy, during which students work as a group, presenting different aspects of a dispute, to then all work together with the aim of finding a solution acceptable to all; second, the cross-examination phase, which could involve all students in the peer assessment. According to Aclan and Aziz (2015:11) the addition of appropriate pre-debate and post-debate activities will promote better communication skills in the target language in the participants, since these phases are preparatory for the construction of groups and the functional lexicon to support the arguments of the debate;
- b) Flipped Learning Methodology: this is a learning project that involves the whole class whereby both teachers and students take up the challenge of being responsible for

their own learning. In their research, Crouch and Mazur (2001) have underlined how the learning scenario of this methodology is characterized by the continuous interaction between learners who, more specifically, are more free to give their own interpretation and meaning to the topics they have explored outside the hours devoted to curricular learning. According to the format described by Talbert (2012), the classroom constitutes the common physical place where teacher and students meet intentionally to develop a relational and social dimension on the topic that has been explored outside the classroom. The repercussions on a socio-didactic level are the freedom to express oneself and circumscribe the subject matter of study, making others aware of one's personal interpretation;

- c) **Project Based Learning:** Anthony (2010) defines PBL as a systematic approach based on problem-solving. According to Boss (2015), the observation and experimentation of authentic communicative activities are distinctive features of this method. An experimental didactic, therefore, in which, according to Williams (1986:170) "Experiential learning stimulates original thinking and develops a wide range of thinking strategies and perceptual skills which are not called forth by books or lectures". Therefore this methodology aims at the development of critical thinking to evaluate the arguments and opinions of others, record the most salient observations, make decisions and evaluate the implications of an idea on a given context, to solve a problem, or to analyze and resolve a conflict situation from an intercultural point of view (Kohonen et al., 2014). From this perspective, while PBL offers different varieties of didactic realization, it is possible to identify a common didactic trajectory aimed at stimulating the cooperative work of the students, who discuss a problem in several stages and underline the validity or lack thereof of certain solutions, justifying their premises and purposes. Finally, at the end of the activity considered, the linguistic-communicative and intercultural progress of each student is evaluated.

In conclusion, we agree with Torresan (2022) in considering these methods didactic strategies for teaching languages, due to the fact that these varieties have a social nature of learning and therefore constitute an effective alternative to a transmission mode of knowledge (Zhao, 2013). Indeed, the adoption of these strategies aims to increase the socialization process of the learner committed to finding the linguistic and cognitive resources through the second or foreign language to carry out social negotiation solutions. Therefore, the greatest merit of these resources for language acquisition consists in directing their scientific and language teaching bases to the set of individuals who learn, who are an active and constructive part of the teaching and learning process. As Harmer (2015) argues, their learning tends to become meaningful because it is the result of an interactional, dialogic and mediation process, since each student learns from the others and does so in different environments with more flexible study and systematization times than in the school/curricular timetable. The variety of experimentation of language use in the classroom should then produce a better level of performance and acquisition recorded through ongoing assessment and moments of self-assessment.

7. Conclusion

The study presented in this paper has hypothesized the effects of the right hemispheres' interaction and synchronization in the peer to peer language acquisition process. Additionally, the theoretical framework of this study wants to pave the way for new lines of research into suitable and cooperative activities which can be implemented by teachers of Second and Foreign languages in order to promote meaningful teaching activities. However, the limits of this study are correlated with the epistemological nature of this paper, and the lack of empirical evidence can be overcome by an interdisciplinary action research to assess the effectiveness of cooperative teaching methodology. Therefore, more research should be conducted to identify which new teaching cooperative approaches can be taken into specific consideration to improve the students' positive relationships, create a more interactive learning context characterized by student social-action, and identify the best teaching and learning resources.

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