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Educational implications of the communicative-relational function of the body in children with visual disability

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Abstract: As a pivotal device for knowing and interacting with the world, the body has also been deepened in the context of studies on communicative processes, which have shown that verbal and nonverbal language constitute the complementary elements of a single process. Moreover, although studies about visual perception have shown that the *dorsal stream* would also influence the development of language and communicative processes, it seems that nonverbal communication is an indispensable condition that exists independently of sight. During infancy, the body represents the main tool of expression for the child. This function appears to be further enhanced in case of visual impairment, whereby intense and redundant motor-gestural activity can be observed in infancy. Stamming from these premises, this paper aims to propose a reflection on the educational implications derived from the centrality of the body understood as a tool of relationship and communication in children with visual disability.

Keywords: visual disability, Embodied Cognition, nonverbal communication

1. Introduction

The scientific orientation of recent decades has increasingly valued the role of the body within cognitive processes. This perspective, shared on a multidisciplinary level by the human sciences, has been further corroborated by discoveries conducted within the neuroscientific field, which have demonstrated the existence of a deep connection from a biological point of view between cognitive processes and the sensorimotor development of the individual (Caruana & Borghi, 2016). In particular, the centrality of the body, understood as a device for knowing and interacting with the world, has also been deepened in the context of studies on communicative processes. In this regard, the contribution of Paul Watzlawich, the main exponent of the Palo Alto School, who focused especially on the pragmatic dimension of nonverbal communication, is particularly significant (Watzlawick *et al.*, 1967).

Studies conducted on visual perception have shown that the link between perception and action is mainly determined by visual feedback, the so-called dorsal stream, which would also condition the development of language and communicative processes. This would mean that the motor patterns of a visually impaired person are reduced by the lack of visual information and with them also communication and

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language development. On the contrary, studies conducted on this issue have shown that nonverbal communication is an indispensable condition and exists independently of sight (Saccà, 2014).

During childhood and up to adolescence, the body represents the main tool of expression for the child. Particularly in the case of children with visual impairment, it is possible to observe in the childhood stage an intense and redundant motor-gestural activity that describes their mental states. For this reason, one can speak of *embodied communication* to highlight how any gesture or motor activity, although causal, is a sign to be interpreted and defined (Iverson & Goldin-Meadow, 1997, 1998). The role of the body within communicative and relational processes is enhanced through the use of motor stereotypes and gestures that represent, in fact, vicarious strategies through which the visually impaired person, especially in the early years of life and up to adolescence, compensates for the absence of visual feedback with nonverbal language to communicate and relate to his or her surroundings (Pérez-Pereira, 1994).

The importance of the role assumed by corporeality during the infancy stage, which has already been amply demonstrated in the scientific literature in the pedagogical field, has been further recognized from the legislative point of view, as highlighted by the Directions for the *Curriculum of the School of Infancy and the First Cycle of Education*, issued in 2012 by the Italian Ministry of University and Research, updated in 2018 with the *New Scenarios*, and as further emphasized by the *Pedagogical Guidelines for the Zerosei Integrated* System developed by the National Commission for the Integrated System of Education and Instruction, adopted by Ministerial Decree no. 334 of November 22, 2021.

Stemming from these premises, this contribution aims to propose a reflection on the educational implications derived from the recognition of the enhancement of the corporeality of the child in infancy, particularly its communicative-relational dimension, especially in case of visual impairment.

2. The role of the body in communicative processes

Stemming from these premises, this contribution aims to propose a reflection on the educational implications derived from the recognition of the enhancement of the corporeality of the child in infancy, particularly its communicative-relational dimension, especially in case of visual impairment.

Once the traditional oppositional dichotomy has been overcome, the current orientation of communication studies tends to consider verbal and nonverbal language as complementary elements of a single process, since "we speak with our vocal organs, but we converse with our whole body" (Abercrombie, 1968, p. 55). Furthermore, the prevalence of body language over verbal language within the communicative act has been demonstrated. A greater percentage than 90 percent of the communicative act is determined by nonverbal language (Mehrabian, 1972). Specifically, if during the performance of a communicative act an inconsistency were to occur between the verbal and nonverbal language used by the sender, it would be the latter that would prevail over the former, as it would be perceived by the interlocutor as more authentic and, therefore, truthful: "in everyday experience, the two components of human communication, the linguistic and the nonverbal, are co-present and not only may or may not be in tune with each other, but one may confirm or contradict the other, and in certain cases, one may substitute for the other" (Bonfiglio,

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2008, pp. 18-19). Body language would make it possible to establish a further communicative trace capable of performing a controlling function over verbal language, thus assuming a *metacommunicative function* (Cozzolino, 2003).

Studies on the ontogeny of nonverbal communication have seen opposition between two main positions: innatism and adaptive. According to the first, body language is inherent in humans as demonstrated in the case of the child who before language development uses his body to manifest his needs and emotions. In contrast, the second argues that body language is learned and is influenced by social and cultural dynamics. The deep divergence that exists between these two orientations seems to have found a point of synthesis in Ekmann's (1982) neuro-cultural theory, which admits the existence of the universality of emotional expressions and, contextually, of display rules, i.e., culturally learned social rules of expression of emotions that regulate their control and manifestation according to social contexts.

The functions performed by nonverbal language are multiple. First, as anticipated, it expresses the emotional states of the person. This function can be performed regardless of the interaction with the other person. In addition, it performs an expressive function, which unlike the previous one can take place only during communicative interaction; for this reason, body language is also called *relationship language* (Ekmann and Friesen, 1968; Watzlawick, Jackson and Beavin, 1967). The expressive function pursues the dual goals of communicating information about oneself and interpersonal attitudes. In the latter case, the use of nonverbal language proves to be preparatory for getting to know the other and establishing social relationships. Studies have shown that nonverbal language, which is considered more spontaneous, prevails over verbal language for both functions described, revealing the person's emotions and conditioning the other's judgment (Argyle *et al.,* 1972). Another relevant function performed by nonverbal language is the so-called *syntactic function of nonverbal signals* (Scherer, 1980). It consists of the ability of the body in motion to determine the timing of interaction with the other, assuming gestures, posture, and facial expressions as useful elements in scanning the turns of conversation and returning feedback to the interlocutor. The latter emerges as a fundamental and necessary element for the performance of communicative interaction.

Understood as an extralinguistic communication system (Balboni, 2012), nonverbal language is developed on several dimensions: kinaesthetic, proxemics, haptics, chronemics, vestemics and paralinguistics. The kinaesthetic system refers to body movements and includes posture, facial expressions and gestures. The earliest studies conducted on the interpretation of facial expressions date back to Darwin, who argued that some facial expressions would be innate and reflect the emotional and intentional states of the individual, proving useful for the evolution of the species (Balconi, 2008). Proxemics (a term first coined by U.S. anthropologist E. T. Hall in the 1960s) concerns, on the other hand, the spatial dimension that develops during the communicative interaction between sender and receiver, which possesses its communicative value. The haptic dimension refers to the bodily contact that may occur between the interlocutors during a communicative act. The chronemic dimension, on the other hand, concerns the use of time, while the vestemic dimension refers to physical appearance and contributes to the construction of self-image as a function of interpersonal relationships. Finally, the paralinguistic dimension, also called vocal, consists of the elements that connote the oral linguistic act, such as tone of voice, rhythm, frequency and silence, which contribute to the semantic value of the com-

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municative act. According to Watzlawich, silence itself represents a message endowed with its communicative value (Watzlawich *et al.,* 1967).

In conclusion, the communicative process, understood as a product of the co-participation of linguistic and bodily elements, is configured as a complex system within which several variables occur that determine the communicative act itself, whose pragmatic value is defined in a relevant way precisely by the bodily dimension. Thus, the body in movement acts in space creating new meanings (Berthoz, 1998) within a transformative process that pursues a relational purpose and is based on the interaction between two or more subjects. This concept is of fundamental value in the educational field in which interaction is characterized by a set of factors that require adequate analysis and understanding and that are identified with the type of actor, frequency of action, duration, degree of activity, and degree of predictability (Sibilio, 2020). According to the enactive perspective of Maturana and Varela, it can be defined as a process of co-adaptation and co-evolution in that it consists of the effect derived from the encounter of two agents from which an outcome with characteristics different from those originally possessed by them originates. The core of which lies in perception, that is, "the comparison between different processing systems, between different biological structures, beliefs, experiences, and attitudes that concur to generate knowledge and its evolutionary dimension" (*Id.*).

3. The role of corporeality in the development process of communicative and relational functions of the child with visual impairment

Part of the relevant scientific literature states that people with visual impairments often use different strategies and learning styles than sighted people, and they do so both to compensate for the absence of visual information and to move independently in their surroundings. This results in their developmental path being somewhat different from that followed by the sighted, but not in the result. Cognitive, language and motor skills develop normally, albeit with some delay, as do mental representations (Ricciardi et al., 2009, Marotta et al., 2013).

During infancy and into adolescence, the body represents the main tool of expression for the child. It is possible to observe especially in the period from 12 to 36 months a prevalence of gestures. Later, as verbal language develops, and especially from adolescence onward, the use of gestures gradually decreases, leaving more space for speech. Therefore, gestures are preparatory to the child's development. In the case of children with visual impairment, it is possible to observe an intense and redundant motor-gestural activity in the childhood stage that describes their mental states. For this reason, one can speak of *embodied communication* to highlight how any gesture or motor activity, although causal, is a sign to be interpreted and defined (Iverson & Goldin-Meadow, 1997, 1998).

The role of corporeality within communicative and relational processes is enhanced using motor stereotypes and gestures, which represent, in fact, vicarious strategies through which the visually impaired person, especially in the early years of life and up to adolescence, compensates for the absence of visual feedback with nonverbal language to communicate and relate to his or her surroundings. Thus, in this case, the absence of visual data is compensated by both nonvisual sensory information and linguistic information, and both are capable of enabling a rich and

detailed representation of the surrounding reality. The child with visual impairment is, therefore, able to glean information from the outside world with the help of alternative channels: touch, hearing, and smell alongside motor behavior serve a fundamental function in the early periods of development, while verbal descriptions gain importance, especially in adulthood. A child with visual impairment, if appropriately stimulated during childhood, develops from adolescence onward a syntactic overproduction that is an expression of a higher level of language development than that of his sighted peers (Pérez-Pereira, 1994).

During sense-motor development, the child with visual impairment encounters a number of difficulties in the maturation of certain skills. Consider gross motor skills, such as sitting, walking, and crawling, and fine motor skills, such as reaching, grasping, and manipulating objects. M. Pérez-Pereira & G. Conti-Ramsden (2002) indicate that the cognitive development of children with visual impairment is delayed overall during the early years of life. This is probably because in the first few months, to learn about and explore the environment, they use and coordinate sensory systems with motor experience, and only later do they also exploit language to compensate for the lack of visual information.

A very important developmental stage for language acquisition concerns not only the direct knowledge of objects that occurs over time through various experiences but also and especially the development of social interaction and the beginning of preverbal communication. Interestingly, the absence of visual feedback represents a crucial node in the development of intersubjective relationships, especially since blindness deprives some children of the many opportunities for eye contact, beginning with those usually manifested in the mother-child relationship (Ainsworth et al., 1974). In fact, for children with visual impairment, the major problems are primarily related to the ability to establish *vis-à-vis* interactive routines and to respond contingently to the stimuli they receive. All this limits their ability to gain experience with alternating turns and to develop a clear self-concept. It seems clear, then, that children with visual impairments have difficulty discovering themselves, their bodies, and the effects of their behavior on the physical and social environment around them (Als et al., 1980).

Another aspect to which specific attention should be paid is the use of communicative gestures, which usually, in the prelinguistic period, are quite frequent as well as spontaneous, since they characterize much of the child's first year of life and are direct precursors of language (Iverson & Goldin-Meadow, 1997). Various research in recent years agrees that the early communicative register of sighted people is made up of various types of gestures, predominantly used to express needs, desires, and thoughts. Many of the meanings conveyed by these interactive modes are equivalent to first words and thus are a kind of gestural "proto-lexical" that has the function of reinforcing intersubjective exchanges. In children with visual impairment, the frequency of their use is reduced, and their nature is different (Iverson & Goldin-Meadow, 1997, 1998). However, such gestures often associated with stereotypies are not dysfunctional, rather they have a strong adaptive value since they replace all the visual feedback that normally accompanies dialogic interactions (glances, facial expressions, and smiles).

4. Conclusions

Another aspect to which specific attention should be paid is the use of communicative gestures, which usually, in the prelinguistic period, are quite frequent as well as spontaneous, since they characterize much of the child's first year of life and are direct precursors of language (Iverson & Goldin-Meadow, 1997). Various research in recent years agrees that the early communicative register of sighted people is made up of various types of gestures, predominantly used to express needs, desires, and thoughts. Many of the meanings conveyed by these interactive modes are equivalent to first words and thus are a kind of gestural "proto-lexical" that has the function of reinforcing intersubjective exchanges. In children with visual impairment, the frequency of their use is reduced, and their nature is different (Iverson & Goldin-Meadow, 1997, 1998). However, such gestures often associated with stereotypies are not dysfunctional, rather they have a strong adaptive value since they replace all the visual feedback that normally accompanies dialogic interactions (glances, facial expressions, and smiles).

The centrality of the body within the educational process seems to be, by now, widely recognized, as evidenced by the indications *for the Curriculum of the School of Childhood and First Cycle of Education*, issued in 2012 by the Italian Ministry of University and Research, updated in 2018 with the *New Scenarios* and as further emphasized by the *Pedagogical Guidelines for the Zerosei Integrated* System elaborated by the National Commission for the Integrated System of Education and Instruction, adopted by Ministerial Decree No. 334 of November 22, 2021. Within these documents, the idea of the centrality of the body as a tool for self-knowledge, interaction with others and in space, and as a communicative and relational device on par with other languages is repeatedly emphasized.

Attention to the enhancement of knowledge of the uses of the body during the childhood period has a scientific basis in the peculiarities that mark the developmental stage of the child at that age. In fact, during infancy and until adolescence, the body represents the main tool of expression for the child; therefore, it is possible to observe especially in the period from 12 to 36 months a prevalence of gestures. Later, as verbal language develops, and especially from adolescence onward, the use of gestures gradually decreases, leaving more space for speech. Therefore, it could be said that gestures are preparatory to child development, regardless of the presence of visual impairment. In the latter case, however, more pronounced gestures can be observed as the body develops strategies to vicariate the absence of visual feedback (Saccà, 2014). Studies show that a child with visual impairment if appropriately stimulated during childhood, develops from adolescence onward a syntactic overproduction that is an expression of a higher level of language development than that of his sighted peers (Pérez-Pereira, 1994). Thus, the motor and verbal stereotypies developed by the child with visual impairment represent adaptive strategies through which the body attempts to vicariate both the absence of visual information and adequate language development, enabling it to act and interact with others and with the external context (Saccà, 2014).

Therefore, during childhood, the body in movement seems to possess a strong communicative-relational value, which would be further accentuated in the case of children with visual impairment. For this reason and given the deep educational value that has traditionally been accorded to corporeality by pedagogy, it is necessary to pay

special attention to the design of the educational setting so that it is adequate to effectively meet the educational needs of children and the special educational needs of children with visual impairment. Responding to a need common to all and at the same time peculiar and necessary for some, an educational setting effectively designed for the development of competence regarding the knowledge and development of corporeality contained in the ministerial directions is assumed to be highly inclusive. Moreover, it would be configured as a facilitator of the child's process of development and growth, and in the case of the child with visual impairment, it would represent an element that while not being able to intervene in the deficit would allow for the reduction and/or, even, elimination of the handicap.

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