

# TAC-TIC Therapy in Ventilated Preterm Neonates as Semiotic Mediation: a Vygotskian Perspective

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**Abstract:** The concept of semiotic mediation is the conceptual nucleus of the historical-cultural approach proposed by Vygotsky (1984) whereby man is represented neither by a machine nor by a living organism, but as a cultural being – a being of language. I argue that children born either full term or preterm are from the beginning developing through the mediation of sign. This paper is a reflection upon the possible role of TAC-TIC therapy as semiotic mediation between behavioural, physiological and immunological systems. Vygotsky interprets signs as a cultural production, which radically affects the biological nature of humans. In this way, it is possible to conclude that gentle/light stroking contributes to psychoneuroimmunological interactions because it constitutes a possibility of semiotic mediation through non-verbal signs – which play a sequential role in the interaction process of child with others and, therefore in the intrapsychological and regulatory functioning.

**Resumo:** *Mediação Semiótica da Terapia TAC-TIC em Pretermo Ventilado: Uma Perspectiva Vygotskyana.* O conceito de mediação semiótica ocupa posição central na abordagem histórico-cultural proposta por Vygotsky, onde o homem não é visto como uma máquina ou um organismo vivo mas como um ser cultural e de linguagem. Meu argumento é que as crianças nascidas a termo ou pretermo se desenvolvem desde o princípio, através da mediação de sinais. Este artigo reflete sobre o papel da terapia TAC-TIC como mediação semiótica entre os sistemas comportamental, fisiológico e imunológico. Vygotsky interpreta sinais como produção de cultura que afeta a natureza biológica do ser humano. Desta forma, é possível concluir que o toque (stroking) sistemático e suave como em TAC-TIC possibilita as interações psiconeuroimunológicas porque torna possível a mediação semiótica através de sinais não verbais – estes sinais atuam no processo sequencial interacional da criança com os outros, e, portanto na função intrapsicológica e regulatória.

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## Introduction

The issue of early sensory experience related to distressed preterm neonates has been discussed along the last decades (Adamson-Macedo et al. 1994; Hayes, Adamson-Macedo and Perera 1996; Corff and Venkataraman 1995; de Roiste 1991; Evonuik and Shamberg 1979; Luddington and Hadeed 1991; Scafidi et al. 1990; Field et al. 1986). Adamson-Macedo (1997) used a theoretical and practical model, in the field of psychoneuroimmunology – the Equilibrium Model (ThEM) to explain the coactions or interactions occurring simultaneously between the behavioural (video analysis of frequency of distress and non-distress behaviours), physiological [cardiovascular parameters (beats per minute)] and the immune [secretory immunoglobulin A (SigA)] systems of ventilated preterm neonates; this empirical investigation was based upon a systematic gentle and light stroking therapy referred to as Touching and Caressing; Tender In Caring (TAC-TIC) therapy, designed by Macedo (1984).

In short, the empirical investigation (Hayes and Adamson-Macedo 1998) used a repeated measures design and the data mentioned above were sampled three minutes before, three minutes during and three minutes after the control condition named “spontaneous activity” (infant lying alone with no intervention) or the experimental condition (TAC-TIC). Statistical analysis (t-test) indicates that equilibrium amongst the three systems, simultaneously, is significantly higher after TAC-TIC as compared with the control condition.

My paper is a reflection upon the possible role of TAC-TIC therapy as semiotic mediation between behavioural, physiological and immunological systems. The concepts of semiotic mediation is the conceptual nucleus of the historical-cultural approach proposed by Vygotsky (1984) whereby man is represented neither by a machine nor by a living organism, but as a cultural being – a being of language. I argue that children being them full term or preterm are from the beginning developing through the mediation of sign.

## Historical-Cultural Perspective

Based upon the historic-cultural approach, I reflect below on the role and importance of social interaction in the constitution of the subject based on the studies of TAC-TIC therapy with preterm neonates.

Human phenomena are understood in accordance with various models of reference; therefore theories of child development present different views of the role of social interaction in human development. It is important, however, to overcome the limitations which are normally imposed by a discussion based exclusively, at theories level; my contribution is through reflections that allow to identify the conception and models of man and world which are the basis for any theoretical and scientific productions as well as therapeutic practices.

When confronted with the difficulties inherent in the investigation of human behaviour, medical and psychological knowledge assumes that behaviour is necessarily conditioned by organic and functional mechanisms. In others words, the modern scientific rationality implies two hegemonic conceptions of man and the world, the mechanistic and the organist paradigms – metatheoretical paradigms or

models, which according to Overton and Reese (1970), can be seen as metaphors, utilised for the understanding of natural and human phenomena.

The mechanistic model is expressed in the works of Galilee, Descartes, Keeper and Newton, among others. The basic metaphor employed in the mechanist model is that of a machine. In this model and psychological theories based on it, social interaction is reduced to a unilateral process, linear, and mechanical, from the outside to the inside, where subject is passively molded by his/her immediate environment.

The organist model represents nature and human being as an organised living system; activity being its basic principle. The organist model emphasises the functioning of the organism as a whole contrary to mechanistic model emphasises the elements or parts of the organism. In this model, the subject plays an active role in the interactional process, while the environment has secondary, occasional role, no more than that of molder of the subject (as in mechanismism), but that of a modulator of his or her development rhythm. In this model the concepts "interaction" is used to define the relation between the subject and his or her immediate surroundings, especially the physical environment, where the subject plays an active role.

The historical-cultural approach is radically different from the mechanist and organist models; man is represented neither by the machine nor the living organism (either meaning the botanical or zoological scale), but as a cultural being, a being of language. The social interaction process is not seen as molder or modulator of the subject, but as a process constitutive of the human development.

The historic-cultural approach is anchored on a conception of the sign (semiotic mediation) in human development. Here, it is Vygotsky's efforts to explain the historical-dialectic point of view, about the interaction between biological and cultural aspects. (Vygotsky 1978; Werner 1999).

Vygotsky interprets signs as a cultural production, which radically affects the biological nature of human psychism, and specific human thoughts, actions and behaviour emerge from these signs.

Wertsch and Hickmann (1987) emphasise that "although all theories recognise the importance of social interactive processes to some extent, only some attribute them a central explanatory status in ontogenesis." This is what happens with Vygotsky's perspective.

In Vygotsky's interpretation, human development involves mutually constitutive processes of immersion in culture and simultaneous emergence of singular individuality the context of social practice. The conceptual nucleus of this perspective is semiotic mediation (Smolka 1994).

### **TAC-TIC Therapy as Semiotic Mediation: A Vygostkian Perspective**

According to Vygotsky a child with some deficiency be it sensorial, physical or mental, or in great risk circumstances as the preterm infants, has his/her development ruled by the same laws of a normal child. However, any of these problems can cause difficulties in the development of the higher psychic functions as well as in the very constitution of the subject; these problems interfere in the personal communicative processes mediated by signs, being these processes "essential mecha-

nisms which allow the 'transition' from inter to intrapsychological regulation to take place in ontogenetic development (Wertch and Hickman 1987).

How can "systematic gentle and light stroking therapy, referred to as Touching and Caressing, Tender in Caring" be a mediating mechanism privileged in the interpersonal communicative processes with distress and ventilated preterm neonates? TAC-TIC studies have been demonstrating both immediate and long-term beneficial consequences to the majority of babies who received the therapy. In view of the studies findings, particularly the ventilated preterms during their first week of postnatal life, the light strokes might become a very important and powerful sign for the infant, which may acquire the meaning of less pain. As stated by Smolka, "the participation of others implies an attribution of meaning to the child's actions. Another, who completes, compensates and interprets the infant's actions, may only satisfy the infant's need, so it is in the movements of others that his/her first attitudes will take form" (Smolka 1994).

### Conclusion

TAC-TIC Therapy to preterm neonate – as signs – can be considered equivalent to the "finger alphabet" used with blind child: the blind child needs access to culture through alternative cultural instruments of interaction – as Braille to learn reading; likewise a preterm high risk neonate needs appropriate instruments to interact with others (interpsychological) and gradually construct his/her intrapsychological functions, acquiring the ability to regulate its own psychoneuroimmunological system.

Vygotsky interprets signs as a cultural production, which radically affects the biological nature of human. In this way, it is possible to conclude that gentle/light stroking contributes to psychoneuroimmunological interactions because it constitutes a possibility of semiotic mediation through non-verbal signs – which play a sequential role in the interaction process of child with others and, therefore in the intrapsychological and regulatory functioning.

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