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**THEORY OF MIND AND EMOTION:
STUDIES ON SCHOOL AGE CHILDREN**

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Abstract

Theory of Mind (ToM) is the ability to impute mental states – intentions, beliefs, thoughts, desires, emotions and other psychological states – to the self e to the others as a way of making sense and predicting behavior. Recently ToM researchers has been adopted a life span perspective – that leads to the construction of new instruments to assess ToM – and studied individual differences in ToM, including emotion understanding and the relationship between ToM and socio-emotional functioning. The present work is aimed to analyze deeper the development of mental states (both epistemic and emotional) understanding in children and its link with emotional difficulties, dealing with some novel topics within ToM studies, regarding ToM assessment in school age children with a new advanced task and the relationship between ToM and internalizing problems, characterized by emotional problems (while traditionally ToM researches study preschool children, using classical false belief tasks, and the link between ToM and externalizing behaviors). The *first chapter* reviews ToM studies: the main theoretical approaches; the link of ToM with the social and emotional functioning; the development of ToM; the methodological issue, concerning the assessment of epistemic and emotional states, in ToM studies. The *second chapter* presents the *Voice Test*, a new advanced ToM instrument, and its validation and standardization on an Italian school age children sample aged 6,5-11,4 years; the test assesses the ability to understand a wide range of complex mental states from vocal cues. Finally, in the *third chapter* it is studied the relationship between ToM and psychological risk in children and, in particular, it points out the link between poor ToM and frequent somatic complaints in a normal school age children population.

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Introduction

The researches and reflections I present in this work, carried out during the three years of my PhD, are developed within the field of study of Theory of Mind (ToM). ToM is the ability to attribute mental states, such as beliefs, intentions, desires, pretending, knowledge, to oneself and others; it enables one to understand that mental states can be the cause of behavior and thus it can be used to explain and foresee actions (Premack & Woodruff, 1978).

For a long time ToM researchers focalized only on preschool children, on their comprehension of epistemic mental states (i.e., false belief) (Wimmer & Perner, 1983). Thanks to the studies conducted on this matter, it was possible to point out normative data and to create theoretical models on the development of mental state understanding during the preschool years (as I review in the first chapter).

In these last years researchers have subscribed to a broader definition of ToM (Bruner & Feldman, 1993; Hughes & Leekam, 2004), that includes a wide range of mental states, not only epistemic but also motivational and emotional states (Astington, 2001). Moreover recently researchers have adopted a life span perspective (Freeman, 2000; Khun, 2000), that leads for example to the construction of new instruments to assess ToM or its precursor from infancy to old age, even if it is hard to create ecological tasks that can assess the complexity of the mental states understanding.

Researchers are also interested in individual differences in ToM (Repacholi & Slaughter, 2003), not only in children with severe psychopathologies (i.e. autism spectrum disorders; Baron-Cohen, 1995), but also in typical children and children with various psychological problems. For example they studied this ability – understood also as a

mentalising style (Sharp, Croudace & Goodyer, 2007) – in children with externalizing behaviors (Liverta Sempio, 2002; Sharp, 2006). In fact ToM is supposed to be link to the social functioning (Moore & Frye, 1991; Astington, 2003), because people act on the basis of their mental representation of the world.

This thesis has the aim to analyze deeper and go forward in these new directions within ToM studies.

In particular it is focalized on typical school age children, that received not much attention, because of – I suppose – the difficulty to find tests that are able to assess the growing ability to understand complex epistemic and emotional mental states. In fact there are few advanced ToM instruments suitable for older children (Happè, 1994; Baron-Cohen et al., 2001b). Moreover these tasks use narrative or visual stimuli, that are very important in everyday life, but do not consider vocal cues that usually and often automatically we use during social relationship to grasp others' mental states. Finally, thinking to the Italian population, there are not ToM tests standardized for school age children.

In order to contribute to fill these methodological gaps it was created, validated and standardized a new advanced ToM task based on vocal stimuli for Italian school age children: the *Voice Test*. It assesses the understanding not only of complex epistemic mental states, but also of complex emotions, as explained in the second chapter.

Another new direction follows here, that contributes to study in depth ToM individual differences, regards the hypothesis that ToM is linked to the emotional functioning. Thus this work begins to investigate this matter, studying if children with emotional difficulties (i.e. internalizing problems, for example depression, anxiety and somatization) are impaired in mental states understanding. Because of the importance of the early mental health problems identification and consequently the early

psychological intervention, it can be important to study ToM development not only in children with proclaimed psychopathologies, but also in the normal children population, where some individuals could be at risk to develop psychological diseases. So the two researches presented in the third chapter investigated the link between ToM and emotional difficulties in a normal school age sample.

I conclude this brief introduction with the awareness that much work remain to be done, but also with the satisfaction to have contributed, theoretically, methodologically and empirically, to the investigation of ToM development and its link with emotional aspects and also to have begun to analyze the real-world consequences of children ToM (Astington, 2001) not only regarding the social functioning but also the emotional one, with attention paid to their understanding of both epistemic and emotional states.