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Emotional representation in facial expression and script A comparison between normal and autistic children

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Abstract

The paper explored conceptual and lexical skills with regard to emotional correlates of facial stimuli and scripts. In two different experimental phases normal and autistic children observed six facial expressions of emotions (happiness, anger, fear, sadness, surprise, and disgust) and six emotional scripts (contextualized facial expressions). In the second place, the effect of emotional domain (different emotions) in decoding was explored. A semantic grid was applied to conversational line, including two levels of data: the lexical adequacy index (correct decoding of emotion) and the emotional vocabulary (such as the causal representation and the hedonic valence of the stimulus). Log–linear analysis showed different representations across the subjects, as a function of emotion, task and pathology. Specifically, childrens' lexical competence was well developed for some emotions (such as happiness, anger, and fear), and as a function of type of task, that is script was better represented than face. Between the main linguistic indexes, causal relation was a prototypical index for emotional conceptualization. Finally, pathology affected children's performance, with an increased ''facilitation effect'' for autistic children in the script condition.

Keywords: Facial expressions; Autism; Emotion; Script

1. Introduction

In the last two decades, developmental psychology has seen an increasing interest in the emotion comprehension. Emotional face recognition and understanding represents a primary social competence, because it contributes to social interactions and social management (Balconi

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& Lucchiari, 2006). Several researchers suggested that autistic children present a dysfunction in this emotional domain (Kanner, 1943). They are characterized by an impairment of the ability to express their emotional internal states and to decode and understand others' emotion. Moreover, they show an inattentiveness and an apparent indifference towards the face of other people. Indeed, several studies (Celani, Battacchi, & Arcidiacono, 1999) have found that, for autistic children, facial emotions have a weak salience, if compared with other non-emotional cues. They tend to ignore emotional expressions, unless they are explicitly required to do it. Nonetheless, the extent of the deficit in facial expression understanding varies (Gepner, de Gelder, & de Schonen, 1996). In an experimental review about face recognition in subjects with mental retardation, Rojahn, Lederer, and Tassé (1995) observed that, when the cognitive functioning level diminishes, the ability to decode emotions from facial expression diminishes. Even in the more specific case of autism, it is attested that the developmental level plays a central role in determining the ability to decode and understand facial expression of emotions. Low-functioning autistic individuals present an underdeveloped decoding ability, while some high-functioning subjects show a level of performance similar to normals (Rojahn et al., 1995). An overview of the available literature allows us to conclude that, autistic people perform worse than normals, but how great is this impairment? This difficulty suggests the presence of a circumscribed and specific deficit, weakening the hypothesis of a damage of the whole ability to decode the emotional face (Bormann-Kischkel, Vilsmeier, & Baude, 1995).

Another main factor related to decoding competences is the *type of emotions* they have to recognize (Bormann-Kischkel et al., 1995). Autistic subjects shown to be competent in the decoding of the *primary* or *simple emotions* (e.g. happiness and sadness), show more difficulties in processing *secondary* or *complex emotions*, such as pride and embarrassment (Balconi & Lucchiari, 2005; Balconi & Pozzoli, 2003a; Capps, Yirmiya, & Sigman, 1992). To identify these emotions more time and more informational cues must be analyzed. Moreover, as regard to the secondary emotion, a more accentuated difficulty in understanding causal antecedents (the events that caused the emotion expressed by face) and contextual relations (the social situations in which the emotion is produced) emerges (Hillier & Allinson, 2002). Bormann-Kischkel et al. (1995) observed a specific difficulty in understanding the emotions that present a lack of correspondence between people expectations and environment events. These emotions have an external and social origin, such as surprise, dismay, and astonishment. In parallel, Capps et al. (1992) observed a greater impairment in recognizing the expression of those emotions that have an *external locus of control* and, simultaneously, that require a wide knowledge of the social scripts and of their social consequences. Bormann-Kischkel, Amorosa, and von Benda (1993) suggested that the comprehension of emotional expressions that are explained by external events constitutes a precursor of the theory of mind. In line with this hypothesis, Baron-Cohen, Spitz, and Cross (1993) suggested that the comprehension is more difficult for emotions that imply the activation of some cognitive functions, such as mentalization and metarepresentation.

Another main concern is represented by contextual and situational elements that cause emotion (Fein, Lucci, Braverman, & Waterhouse, 1992). Therefore, it is necessary to take into account the role of a wider socializing context. Emotion recognition is allowed by the development and the generalization of an emotional script, that is, a child can recognize a specific emotion by verifying the presence of several prototypical elements that are arranged in precise causal and temporal sequences. These scripts include not only facial expressions, but also the representation of causal factors, physical and social context, several actions and their consequences, as well as the cognitive appraisal of the situation and the subjective experience (Bullock & Russell, 1986). Among these cues, the representation of the causal bonds, that is a set