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Mental state talk in children's face-to-face and telephone narratives



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ABSTRACT

This study analyzes children's theory of mind through mental state talk in two conditions differing for the physical presence/absence of an interlocutor and a shared context. The participants in this study were 115 five- to seven-year-old Italian children. We elicited children's mental state talk through a narrative task. Each child participated under two conditions, face-to-face and telephone story-telling. We coded transcripts to isolate terms referring to mental states. The two total scores, one for mental state talk in the face-to-face conditions and another for the over the phone conditions, correlated. Students used more mental state terms in the telephone conditions than they did in the face-to-face conditions. Children showed more willingness and used more cognitive and moral terms in the telephone conditions than they did in the face-face conditions, with age playing a moderating role. This study confirms the recontextualizing effect of the telephone in eliciting children's mental state talk.

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As children are increasingly exposed to virtualized interlocutors (Fuchs, 2014), their ability to communicate independently from the immediate context, and their sensitivity to the existence of multiple perspectives on a single context are both challenged. In this process, the child's theory of mind (ToM) plays a relevant role, as it guides him/her to adjust verbal production to a communication situation in which the interlocutors do not see each other, and do not share the same context. It is possible to infer children's ToM through an analysis of mental state talk, that is the set of words used by children to refer to themselves and other people, and to attribute thoughts, feelings, emotions and desires to people (Bretherton & Beegley, 1982). Children's telephone talk has confirmed as an adequate context to study the effects of context on referential communication (Cameron & Lee, 1997), and narratives represent an optimal opportunity to analyze children's mental state talk (Accorti Gamannossi & Pinto, 2014; Charman & Shmueli-Goetz, 1998). However, research on children's use of mental state talk to recontextualize their narratives when the interlocutor is absent and the context not shared (e.g., when telling a story over the telephone) is scarce. This study analyzes children's ToM through mental state talk in narratives elicited by two conditions differing with respect to the physical presence/absence of an interlocutor and a shared context, that is, face-to-face communication vs. communication over the telephone.

1. Mental state talk in children

Starting from the assumption that language plays a fundamental role in acquiring understanding of mental states (Astington & Baird, 2005),

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children's mental state talk has often been used as an indicator of ToM (Symons, Peterson, Slaughter, Roche, & Doyle, 2005). Children's mental state talk terms refer to physiology (e.g., being hungry), perception (e.g., see), volition (e.g., desire), emotion (e.g., anger), cognition (e.g., knowing), moral judgment (e.g., judge), and socio-relational terms (e.g., helping) (Bretherton & Beegley, 1982).

The first analyses that adopted this perspective were conducted in the 1980s, but it was particularly through Judy Dunn's studies that children's verbal expressions were used as indicators of children's understanding, and thus development of theory of mind (Dunn & Hughes, 1998). The use of mental state talk to assess children's ToM presents the following advantages with respect to more traditional assessments of ToM, such as the 'false belief' task (Wimmer & Perner, 1983): higher ecological validity, and the possibility to include a broader set of inner states (e.g., desires, feelings) to our understanding of children's theory of mind (Hughes, Marks, Ensor, & Lecce, 2010). Moreover, children's performances in false belief tasks rapidly reach a ceiling effect, whereas adopting mental state talk allows researchers to analyze the development of ToM in older ages, and the different levels of complexity reached in different developmental stages (Lecce, Cavallini, & Pagnin, 2010; Wellman & Liu, 2004). A few studies have also shown that age moderates the effect that contextual conditions exert on children's mental state talk. Longitudinal studies showed that children differ in when and why they talk about mental states (Hughes & Dunn, 1998). For instance, older children (47 months of age) produced more mental states when talking with friends in the context of cooperative play, whereas younger children (33 months of age) produced mental states especially when talking to their mothers (Brown & Dunn. 1996).

Even so, most of the studies that explored children's mental state talk have generally focused on pre-schoolers (Hughes, Lecce, &

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Wilson, 2007). Indeed, we believe that there are several good reasons to assess mental state talk in school-age children too (see Best, Miller, & Jones, 2009 for a similar rationale on development of executive functions during school-age). First, expanding the age range might increase our understanding of ToM as a unitary versus multi-componential construct. Second, several components which have an effect on mental state talk develop during school years (e.g., expansion of vocabulary, working memory, referential communication, and the like). Third, entering school means entering a new set of experiences, and new set of applications of mental state talk in everyday life (e.g., more social settings). During this period of time, children increase their capacity to "read another's mind" by considering emotional states and cognitive biases (i.e., prejudices), in addition to beliefs and wishes (Flavell, Miller, & Miller, 1996). Children also gradually improve their knowledge of mental states that are typically mediated by the mental state talk that characterizes their interactions with peers and adults (e.g., deceit, negation, illusion, regret, promise, certainty, and the like) (Bianco, Lecce, & Banerjee, 2015). Moreover, children's empathic comprehension drastically increases in these years, allowing them to be more accurate and sophisticated when attributing mental states on the basis of emotions (Eisenberg, Murphy, & Shepard, 1997). When children begin elementary school their comprehension of the meaning of mental verbs significantly increases, which in turn influences their mental state talk (Astington, Harris, & Olson, 1990; Lecce et al., 2010). Fourth, prior research has suggested that children's mental state talk develops over time. In their meta-analysis of research on mental state talk, Wellman and Liu (2004) concluded that, although all mental states are equally hard for children to understand, there are strong individual differences in what mental states are understood before others, depending on variables such as individual experiences or family environment.

1.1. Mental state talk in children's narratives

Narratives can be considered as a mean through which children develop, practice, and redescribe their ToM understanding to more complex levels (Guajardo & Watson, 2002; Karmiloff-Smith, 1995), thus narratives represent an ideal context to explore children's use and development of mental state talk (Accorti Gamannossi & Pinto, 2014) and to promote it (Grazzani & Ornaghi, 2011). Around 3-4 years of age, children are able to refer to the main characters' mental states when telling stories. Then, children become increasingly more effective in describing the characters, using names and grammatical forms of person, and explicitly referring to mental states (Rollo, 2007). Faso and Primi (2003) examined mental state talk in 5-year-old children attending kindergarten. From their results they concluded that at this age children are already able to include mental state talk in their narratives, although involving mainly physiological and perceptual aspects. They also found that the content of the narratives influenced the usage of mental state talk. Some of the children's stories were more centered on the action, and included more perceptual terms, whereas other stories were more centered on the characters, and included more emotive terms. Baumgartner, Devescovi, and D'Amico (2000) examined 4–6-year-old children's ability to infer mental states in a narrative comprehension task under two conditions, with an adult versus with a peer. Their results indicated that the interactional context influences children's ability to refer to mental states in a narrative.

2. The effect of the context on children's communicative interchanges

During the kindergarten years, children's interactions are contextualized: children's communication is dependent upon the immediate context in which they speak, the 'here and now' (Snow, 1983). When children enter elementary school, and begin to write, they are increasingly asked to communicate information to someone who they do not see, and about contexts that are not 'here and now': they are asked to

communicate in a decontextualized way. As children develop, their language becomes independent from the context (Snow, 1983). Children increase their ability to connect their representations with the representations of others and their understanding of conversational interchanges. Thus, they become increasingly able to see conversations and communication interchanges as a 'meeting of minds, a collaborative context in which the awareness of the listener's status is crucial (Resches & Pérez Pereira, 2007). As a support to this idea, Resches and Pérez Pereira (2007) noticed that past research found that children with a developed ToM are also likely to take part in pretend play, even in a more sophisticated way (Astington & Jenkins, 1995), to use more mental state talk in everyday conversations (Hughes & Dunn, 1998), and are considered to have more developed social abilities (Lalonde & Chandler, 1995). Also narratives depend on the context, such as sharing or not a visual prompt (Spinillo & Pinto, 1994), or adopting the oral versus the communicative channel (Bigozzi & Vettori, 2015; Pinto, Tarchi, & Bigozzi, 2015, 2016).

2.1. Face-to-face versus telephone communication in children's narratives

A specific case of decontextualized communication is represented by telephone talk. Telephone talk is both decontextualized and yet oral (Cameron & Hutchison, 2009). Children's telephone conversations share the oral channel with face-to-face conversations, whereas they share the functional aspects of language usage with written narratives. Cameron, Hunt, and Linton (1996) proposed that when children are exposed to conventional writing, they have to 'recontextualize', rather than decontextualize their communication. Indeed, writers, and narrators more generally, have to learn to take into account the reader/ listener's state of knowledge of the content, recontextualize the material to be shared, and establish a field of mutual understanding in order to create a comprehensible text, rather than just learn how to communicate independently from the immediate context. According to Clark (1996), face-to-face conversations are the basic setting for language acquisition, and all the other uses of languages (e.g., telephone conversation or written communications) are derived from face-to-face conversations. Face-to-face conversations are characterized by several features: immediacy (co-presence and visibility of the speaker and listener, and oral and instantaneous communication); medium (the medium used is evanescent, recordless and simultaneous); and degrees of control (conversations are extemporaneous, self-determined, and selfexpressive). Concerning immediacy, using the telephone means that interlocutors are not able to see and hear each other and the surroundings without interference (co-presence and visibility features of immediacy are lost). With respect to medium, face-to-face and telephone conversations share all the features of evanescence, recordlessness and simultaneity, unlike what happens, for instance, in written forms of communication. However, the presence of a physical medium, for example, a common view or object, might characterize face-to-face conversations as less evanescent than telephone conversations would. Finally, with respect to degree of control, in face-to-face conversations the interlocutors are in full control, whereas in a telephone setting they might be more restricted, for example, loss of information from gaze, bodily orientation and gestures might force the interlocutor to establish a verbal common ground. Mediated communications such as telephone conversations are placed somewhat midway between oral and written discourse, as they share certain features with faceto-face communication (i.e., audibility, instantaneity, evanescence, recordlessness, simultaneity, extemporaneity, self-determination, and self-expression persist), but differ from them in other features (i.e., absence of co-presence and visibility) (Clark, 1996).

It is important to notice that what differentiates face-to-face and telephone conditions is not only the presence/absence of the interlocutor, but also the presence/absence of shared visual stimuli between the two partners (e.g., a drawing, as in Tarchi & Pinto, 2015). Although the effect of prompts on children's narrative content is acknowledged in the literature (e.g. Schneider & Dube, 1997, Spinillo & Pinto, 1994), the

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