Private and inner speech and the regulation of social speech communication

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ABSTRACT

To further investigate the possible regulatory role of private and inner speech in the context of referential social speech communications, a set of clear and systematically applied measures is needed. This study addresses this need by introducing a rigorous method for identifying private speech and certain sharply defined instances of inaudible inner speech. Using this classification system, longitudinal data were gathered from 10 pairs of children performing a referential communication task at 4.5, 6.5, and 8.5 years of age. Results demonstrated children's substantial production of private and inner speech in this communicative situation, with speech forms varying in amount and type as a function of age, communicative role (speaker or listener), and the complexity of the material to be communicated. It is suggested that private and inner speech embedded in discourse may serve a regulatory role in social speech communication.

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1. Introduction

Vygotsky (1934/1987) claimed that children talk aloud to themselves when they encounter a cognitive challenge that requires them to stop and think. This personal form of verbal thinking, called *private speech*, helps children to analyze and solve problems and gradually develops into a silent, subvocalized form of thinking called *inner speech*. Studies of private speech development (see Berk, 1992;

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Winsler, Fernyhough, & Montero, 2009, for reviews) have focused largely on problem-solving tasks of an academic nature, but recently researchers working with referential communication tasks (see Martín, Boada, & Forns, 2009, for review) have begun to explore the role of private and inner speech in solving problems related to social speech communication. One particularly promising avenue of investigation taken by Boada and Forns (2004), for example, uses a communication task to examine the relations between private speech and children's personal understanding and socially communicative use of abstract spatial deictic terms. These pioneering studies have made strides in documenting the presence of private speech in speakers' messages and listeners' actions, and in tracking the developmental transformation of private speech into inner speech, as well as linking the cognitive functions of private speech to task difficulty. However, further progress is greatly hindered by methodological obstacles. Specifically, the use of different classification systems for identifying and categorizing private speech and inner speech has made it very difficult to compare results across tasks.

The present study addressed these issues by introducing a rigorous methodology for identifying private speech and certain sharply defined instances of inaudible inner speech. We designed an empirical method that could reliably distinguish between utterances intended as social, private, and inner speech, and we applied this system to data collected from 10 pairs of children examined longitudinally at 4.5, 6.5, and 8.5 years of age. Our aims were to replicate previous findings showing that children produce private and inner speech in communicative situations and to provide a more in-depth examination of how these speech forms vary in amount and function according to age, communicative role, and the cognitive complexity of the material to be communicated.

1.1. Eliciting private speech in a communication task

Because communicative exchange with speech requires the coordination of a host of cognitive, linguistic, and social abilities (Lefebvre-Pinard, 1985), a connection between private speech and the development of socially adapted speech would be expected (Wertsch, 1985). Among the communicative tasks that present a major cognitive challenge for speech regulation are referential tasks. In these tasks, the speaker has to select and verbally codify in a message an object or action, as well as convey information about its relationships, such as explaining how different objects are situated in a picture or giving instructions to follow a route. The message transmitted to the listener must unambiguously describe the attributes that distinguish one referent from another. Speaker and listener are prevented from seeing one another; thus, they must rely entirely on verbal communication to coordinate their efforts (Dickson, 1981). There is general agreement that during the early school years children show significant progress in the regulation of their communications, especially at about 6 years of age, although as listeners they still have difficulty detecting ambiguity in the information that is received in conversation, as well as difficulty producing unambiguous messages as speakers before 8–10 years of age (Boada & Forns, 1997; Camaioni, Ercolani, & Lloyd, 1998; Lloyd, Mann, & Peers, 1998).

Typically, private speech has not been included in most referential communication studies as a possible indicator of young children's intentions to regulate their speech. Thus, the few studies that have explicitly taken up that question (Boada & Forns, 2004; Girbau, 1997; Varenne & Beaudichon, 1996) are breaking new ground. Before considering them, we address the critical question of the empirical measures that enable researchers to reliably identify utterances of private speech occurring in the middle of a social speech communication.

1.2. Empirical methods for studying private speech in communicative tasks

Classical methods of distinguishing utterances of private speech from those of social speech, which were developed for use in non-communicative or minimally communicative tasks, are based on the notion that private speech is not directed to another person, but rather to oneself (Winsler, Fernyhough, McClaren, & Way, 2005). Therefore, one set of "positive" indicators of private speech includes behaviors such as lowered voice volume, lack of eye contact, and lack of physical contact. These behaviors contrast sharply with those associated with social speech communication, which is typically signaled by direct eye contact or visual gaze directed toward the listener (Bates, Benigni, Bretherton, Camaioni, & Volterra, 1977), the use of vocatives (Dickie, 1973), body oriented toward the