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Temporally extended self-awareness and affective engagement in three-year-olds

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ABSTRACT

The aim of the current study was to analyze the role of affective engagement during social interaction on the emergence of a temporally extended self (TES). A Delayed Self Recognition task was administered in two different social contexts: in presence of the mother ("Mother condition") or in presence of an unfamiliar person ("Experimenter condition"). The same sample of 71 three-year-olds was tested twice in these two treatment conditions. Results showed higher self-recognition scores in the "Mother condition". These findings are consistent with developing-self theories that emphasize the impact of reciprocal social interaction on the emergence of self-awareness, and support a conception of the Self as a *dialogic* entity. We interpreted this link as a evidence that, when completing the procedure with their mother, children are aware of *her* attention, which corresponds to a familiar mode of self-perception, as well as to a peculiar affective consciousness of Self.

1. Introduction

Temporally extended *self-awareness* has been classically defined as what allows to recognize that "I am the same self that I was yesterday" (James, 1890/1950, p. 332), thus providing a sense of personal continuity through time. The prevailing account of its acquisition conceives it as a consequence of a cognitive maturation that typically occurs at around four years of age (Povinelli, Landau, & Perilloux, 1996). The development of self-awareness is one of the most fundamental issues in psychology, and it has been described as 'forward engineering' (Rochat, 2003), since different constituents of the self develop chronologically during infancy and early childhood (Damon & Hart, 1982). Rochat (2003) described a predictable developmental trajectory, which encompasses six levels of self-awareness: *confusion, differentiation, situation, identification, permanence and self-consciousness*. In particular, identification would be expressed by the successful passing of Mirror Self-Recognition (MSR), at around eighteen months of age, when children demonstrate to comprehend that the mirror reflects their self-experienced "me" by reaching for the mark on their own body to remove it. According to this framework, a temporally extended self-awareness consists in the acquisition of a sense of permanence of the self, and can be defined as "the birth of me extending over time" (Rochat, 2003). This would emerge at around the age of three-four, when children begin to grasp the temporal dimension of the self. At this level, preschoolers begin to recognize themselves in videos and photographs taken in the past as opposed to live videos or contingent mirror images (Povinelli, 2001; Rochat, 2003). As commented by Lazaridis (2013, pp. 52–56) "the findings of studies that have investigated the emergence of DSR in young children are

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inconsistent, since some evidence posits that DSR can be detected reliably at 4 years, while other studies suggesting that DSR can be detected as early as 3 years of age."

The acquisition of a temporally extended self is classically assessed through the Delayed Self-Recognition Paradigm (Povinelli & Simon, 1998). In this task, the experimenter and the child are filmed playing a distractor game, during which the child is patted on the head in praise. Whilst praising the child, the experimenter covertly places a large sticker on top of his head. After a delay of three minutes, the pair watch the recording of the distractor game, including the sticker placement, and the child's reaction is assessed. Successful performances are indexed by children's attempts of reaching up the sticker.

Despite research shows the existence of strong individual differences between children aged three in passing the Delayed Self-Recognition paradigm (Welch-Ross, 2001), very few studies investigated their origins and correlates. A fruitful approach comes from theories of the developing self that emphasize the impact of reciprocal social interaction during the first and second years of life on the emergence of self-awareness (Damon & Hart, 1982; Meltzoff, 1990; Rochat, 2003). To date, the most comprehensive research on the relation between social awareness and the acquisition of a temporally extended self, was conducted on a sample of pre-schoolers that were longitudinally followed for 3 years (Kristen-Antonow, Sodian, Perst, & Licata, 2015). The study demonstrated that children's responsiveness toward being imitated in a social game at 12 months was the strongest predictor of children's Delayed Self Recognition at 4 years. Moreover, there was a predictive relation between children's responsiveness toward a social partner in the Still Face task at 9 months and their Mirror Self Recognition at 24 months. Overall, the findings suggest a developmental link between children's early awareness of (and responsiveness towards) the social world and their later self-awareness, which indicates a fairly long-term continuity of self-development.

In the context of the classic mirror mark test, a recent research investigated whether the action of removing the mark on children's head might or might not depend on their awareness of the social context (Rochat, Broesch, & Jayne, 2012). Authors analyzed the performances at the MSR of 86 children ranging from 14 to 52 months in two different social contexts: in the Classic Condition only the child was marked prior to mirror exposure, while in the "Social Norm Condition" both the child and experimenter, and accompanying parent, were marked prior to the child's mirror exposure. Findings showed that in both conditions children pass the test in comparable proportion, with the same increase as a function of age. However, in the "Social Norm Condition" children displayed significantly more hesitation while removing the mark, often touching it without removing it or, if so, promptly putting the mark back onto their forehead. These results are innovative in demonstrating that children who begin to show an explicit evidence of mirror self-recognition by passing the mark test are doing so in a social way, and they also indicate that self-awareness is not the product of a solipsistic mental or introspective process (Rochat et al., 2012). It is worth noticing that the age-range of Rochat and colleagues' sample allowed to assess whether the interdependence of social awareness and self-awareness is expressed from the onset of development, or only after the typical passing age of the mirror mark test (around 22 months). Interestingly, age was not a significant predictor of hesitation among self-recognizers, with a significant increase of hesitation in the Social Norm condition for all passing children, even those younger than 22 months.

Few aspects, however, still remain far from clear. On the basis of Rochat et al.' work (2012), it is unclear whether the concurrent relation between self development and social awareness can be generalized for temporally extended self, and also for other aspects of social interaction, as the affective engagement. Thus, the current research was designed to examine the impact of affective engagement within social interaction on the acquisition of a temporally extended self. In particular, by adopting the DRS (Povinelli & Simon, 1998), our research aimed to: (1) analyze the ability to integrate a past event into a sense of personal continuity, and (2) analyze the impact of a maternal elaborative style during the daily conversation on children' performances on the DSR, independently of the treatment condition.

To analyze the ability to integrate a past event into a sense of personal continuity (aim 1) we adopted the DSR in two different social contexts: in presence of the mother or in presence of an unfamiliar person (the experimenter). To this purpose, the same sample of children was tested twice in two treatment conditions, corresponding to different level of affective engagement within social interaction. This experimental design allows keeping under control the impact of inter-individual differences in cognitive development on DSR responses. We chose to observe a group of 3 year-olds since typically developing children of this age should lack of those representational skills typically believed to support a self-identity concept, and since clear individual differences in DSR are shown during this developmental period (Povinelli & Simon, 1998). Our hypothesis is that the presence of the mother during the DSR paradigm significantly predicts successful performance to the task. Thus, we hypothesized that temporally extended self-recognition does not emerge independently of social interaction. At the theoretical level, we probed the role of affective engagement as a potential motive behind the self-reflective capacities revealed in the passing of the DSR. According to Reddy (2003, 2008) children objective self- consciousness develops within emotional engagement with people in which actions and reactions to others are experienced and used in play. This "me" that the infant is aware of in this simple engagements exists and develops within this relation to other people. It is contained within simple dialogues, existing as a relational entity in the perception of the other's psychological gaze. As the infant perception of other's psychological existence becomes more complex, so also does the consciousness of the visibility of self to others become more complex (Reddy, 2008, pp. 126). In this framework, self-consciousness is from the very beginning, a *Self-with-the other* awareness (Trevarthen, 1999; Trevarthen & Aitken, 2001) and rely also on a non-representational interpersonal processes (Draghi-Lorenz, Reddy, & Costall, 2001).

In exploring the maternal conversational style on the development of a temporally extended self (aim 2), we took into consideration the impact of maternal reminiscing style – that is the way in which mothers engaged their children in talk about the past (Fivush, Haden, & Reese, 2006) – on the development of autobiographical narrative skills (Hudson, 1990; Welch-Ross, 1997), and self-awareness (Reese, 2002). Welch-Ross (2001) described interactions between the acquisition of a temporally extended self in 3-year-olds, their autobiographical memory and a "highly elaborative reminiscing style" of their mothers (i.e., the tendency to focus