11

The Self-Reflective Functions of Inner Speech

Thirteen Years Later

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11.1 Introduction

Thirteen years ago I published a paper on the relation between self-reflection and inner speech (Morin 2005). The basic, intuitively attractive, idea was that a significant part of describing, defining, and understanding our self is done through extensive internal verbal conversations we have with ourselves about any and all aspects of our self. The current chapter aims at substantially updating this initial account by presenting new theoretical ideas and novel empirical evidence unavailable back then. In what follows I (1) introduce background information pertaining to the definitions, functions, neuroanatomy, and measurement of self-reflection and inner speech, (2) formulate the main hypothesis of a link between self-reflection and self-talk, (3) present correlational and causal empirical evidence supporting this hypothesis, and (4) explore theoretical considerations concerning underlying mechanisms explaining how self-reflection and inner speech may interact. Some potential philosophical and clinical implications of the key role played by self-talk in self-referential activities are outlined in conclusion.

11.2 Overview

11.2.1 Self-reflection

Whereas consciousness is usually defined as a state in which one can process and adaptively respond to information coming from the external environment, self-awareness constitutes the ability to become the object of one’s own attention (Duval & Wicklund 1972). Consciousness is more or less synonymous with wakefulness; self-awareness instead involves the active identification, processing, and storing of information from the internal milieu—the self (Morin 2006). Other terms often used to
designate self-awareness are self-reflection (see below), introspection, self-focused attention, self-observation, and mindfulness. Self-awareness entails bodily awareness (Kyselo 2014) as measured by self-face recognition (Gallup 1985), thinking about any possible private (internal) and public (visible) self-aspects (Ben-Artzi et al. 1995), as well as about one’s past (autobiography; Markowitsch & Staniloiu 2011) and future (prospection; Szpunar 2010). Self-awareness is also associated with a host of various self-related operations, among which are self-description (Marsh 1994), self-knowledge (Wilson 2009), self-concept formation (L’Ecuyer 1978), self-evaluation (Higgins 1987), self-esteem (Rosenberg 1965), sense of agency (a minimal form of self-awareness; Farrer & Frith 2002), self-regulation (Baumeister & Vohs 2007), self-efficacy (Bandura 1977), and Theory-of-Mind (ToM) (Dimaggio et al. 2008). [See Morin (2017) for proposed connections between these self-related concepts, as well as DaSilveira et al. 2015 and Racy et al. 2017 for correlations between self-terms.]

Trapnell & Campbell (1999) established a crucial distinction between two types of self-awareness: self-reflection and self-rumination. The former represents a healthy genuine curiosity about the self, associated with positive psychological consequences such as self-regulation and self-improvement, whereas the latter means unhealthy excessive and redundant self-focus linked to depression and social anxiety (Joireman et al. 2002). Note that mindfulness is a concept closely associated with self-reflection—a non-evaluative, non-critical, non-elaborated form of self-focus (Carlson 2013). Although this chapter is about self-reflection (the term I will most often use from now on to designate self-awareness), there is no doubt that inner speech plays a role in self-rumination. I also want to stress that in what follows I will be using the term “self-reflection” in a broad sense, not only limited to Trapnell & Campbell’s definition but also including self-description, self-evaluation, mental time travel, self-knowledge, self-concept formation, self-esteem, and self-regulation. I will submit that inner speech plays a causal role in the implementation and maintenance of all these self-related functions.

Various measures and manipulations of self-reflection exist. Self-focusing stimuli such as a mirror or audience have been extensively used in social/personality research to induce a state of self-focus (Carver & Scheier 1978). The Self-Consciousness Scale (SCS; Fenigstein et al. 1975) and the Rumination–Reflection Questionnaire (RRQ; Trapnell & Campbell 1999) assess stable individual differences in self-focused attention. The Linguistic Implications Form (LIF; Wegner & Giuliano 1980) uses the frequency of first-person pronouns production as an indicator of self-attention. And the Self-Novelty Manipulation (SNM; Silvia & Eichstaedt 2004) produces self-reflection by inviting participants to think about what make them unique.

More recently, brain imaging studies using functional magnetic resonance imaging (fMRI) technology have recorded brain activity in volunteers engaged in diverse self-referential tasks such as agency (e.g., driving a circle along a T-shaped path either by oneself or by an experimenter/computer; Farrer & Frith 2002), autobiography (e.g., recalling memories in response to visual cues; Daselaar et al. 2008), and prospection
(e.g., pre-experiencing future personal events in response to visual cues; Addis et al. 2007). This line of work has led to the identification of a cortical network most frequently activated during self-reflection. This cortical network comprises the medial prefrontal cortex (MPFC), orbitofrontal cortex (OFC), and ventral anterior cingulate cortex (VACC) (Beer 2016).

11.2.2 Inner speech

Inner speech represents the activity of talking to oneself in silence (Alderson-Day & Fernyhough 2015). Many other terms are used to designate inner speech, such as internal dialogue/monologue, phonological loop, self-directed speech, subvocal, covert, or acommunicative speech, auditory imagery, speech-for-self, self-verbalizations, sub-vocalizations, self-statements, and silent verbal thinking (Morin 2012). This state of affairs clearly contributes to conceptual confusion in the inner speech literature. Private speech is speech-for-self emitted out loud by children in social situations (Zivin 1979); adults too report engaging in private speech when alone (Winsler et al. 2006), an observation that contradicts Vygotsky’s (1943/1962) original view according to which private speech gradually gets internalized with age and disappears completely at adolescence, by then replaced by inner speech. Self-talk typically refers to talking to oneself either silently or out loud (Brinthaupt et al. 2015). Heavey & Hurlburt (2008) estimate that around one fourth of people’s conscious waking life consists of inner speech. This frequency illustrates the importance of this cognitive activity, as inner speech indeed serves a host of very important cognitive functions as described below.

Neuropsychological reports of brain-damaged patients and experimental data gathered using Positron Emission Tomography (PET) and fMRI technology show that the left inferior frontal gyrus (LIFG) represents a key cortical area sustaining inner speech production. Multiple studies show LIFG activation when volunteers are invited to silently read single words or sentences, or when they undertake working memory tasks requiring covert repetition of verbal material (Baciu et al. 1999; Geva et al. 2011). Also, accidental destruction or temporary disruption (using repetitive transcranial magnetic stimulation) of the LIFG impedes inner speech (Aziz-Zadeh et al. 2005; Verstichel et al. 1997). Other brain areas associated with inner speech use are Wernicke’s area, the supplementary motor area, insula, left superior parietal lobe, and right posterior cerebellar cortex (Perrone-Bertolotti et al. 2014).

Interestingly, Hurlburt and colleagues (2016) found differences in brain activations when volunteers were asked to engage in task-elicited compared to spontaneous inner speech, where the former was associated with decreased activation in Heschl’s gyrus and increased activation in LIFG, while the latter had the opposite effect in Heschl’s gyrus and no significant effect in LIFG. Another study (Alderson-Day et al. 2016) showed that, compared to a more static “monologic” inner speech, more complex “dialogic” inner speech activates a broader bilateral collection of brain areas, some of
which (e.g., right posterior superior temporal gyrus) are also recruited when thinking about others’ mental states.

Self-report questionnaires constitute the most common and easy way to quantify inner speech. To illustrate, the Varieties of Inner Speech Questionnaire (VISQ—McCarthy-Jones & Fernyhough 2011) contains twenty items assessing the dialogic, condensed, and evaluative/motivational properties of inner speech, as well as the presence of voices of others in inner speech. The Self-Talk Scale (STS—Brinthaupt et al. 2009) is made up of sixteen items measuring the frequency of inner speech for social assessment, self-criticism, self-reinforcement, and self-management purposes. Non-self-report measures of inner speech include private speech recordings, thought sampling and listing, as well as electromyographic recordings of tongue movements. Recordings of private speech emitted by children when solving problems (e.g., puzzles) or planning (e.g., Tower of London) have been used in multiple studies reviewed by Winsler (2009). Self-vocalizations are classified into various categories (e.g., task-relevant/-irrelevant) and correlated with task performance. Thought sampling aims at capturing inner experiences in general, and sometimes inner speech in particular, by randomly asking participants to identify their current internal experiences/conversations in their natural environment using a beeper (Alderson-Day & Fernyhough 2015).

A very wide array of inner speech functions have been identified using the aforementioned measurement techniques. By far the most documented function is self-regulation (also known as verbal self-guidance), which was originally studied by Russian psychologists (Luria 1978; Vygotsky 1934/1962). In essence, people attempt to alter their behavior, resist temptation, change their mood, select a response from various options, and filter irrelevant information by talking to themselves. Indeed, blocking inner speech using articulatory suppression produces self-control deficits on a go–no-go task (Tullett & Inzlicht 2010). Other inner speech functions associated with various aspects of self-regulation are setting/remembering goals (Meacham 1979), planning, reasoning, problem-solving (Lidstone et al. 2010), decision-making, and self-motivating speech (Alderson-Day & Fernyhough 2015).

Classic work by Baddeley and Hitch (1974) shows that inner speech serves a mnemonic function by allowing rehearsal of material in short-term working memory (the phonological loop); inner speech is also involved in remembering one’s past (autobiographical memory; Larsen et al. 2002). Multiple additional studies also suggest that inner speech is actively used when people read, write, speak, and calculate (language function; Abramson & Goldinger 1997; Levine et al. 1982), shift attention between one task and another (task-switching performance; Karbach & Kray 2009), rehearse person-to-person communicative encounters, express emotions (Fuson 1979), learn to differentiate their voice from those of others through private speech use (Fernyhough & Russell 1997), and think about others’ mental states (Theory-of-Mind; Fernyhough & Meins 2009).
11.3 Inner Speech Involvement in Self-Reflection

The main proposal of this chapter is that yet another key function of inner speech exists—its self-reflective role (e.g., DeSouza et al. 2008; Morin 2005; Morin & Everett 1990a; Neuman & Nave 2010; Turjman 2016). The crux of the proposal is this: The verbal labelling of self-characteristics (via inner speech) allows one to become fully aware of them and to gradually incorporate these characteristics into a self-concept. This idea is consistent with the view proposed by several philosophers: attending to our inner speech makes it possible to bring out thoughts to consciousness. That is, we become better aware of our own thoughts (and of any other self-aspects) when they are expressed into inner speech (see Langland-Hassan 2014 for a summary and critique of this view). Closely related to this philosophical view is the higher-order representationalist approach where one becomes aware of mental states when one generates higher-order thoughts about them (Carruthers 2002). To illustrate, one can experience a desire (mental state) and perceive it by thinking about it (higher-order thought, inner speech).

Three possible causal directions between inner speech and self-reflection are conceivable. (1) Inner speech leads to, increases, produces, sustains self-reflection. Let’s keep in mind that I am embracing a broad view of self-reflection, which includes self-related processes such as self-description, self-evaluation, mental time travel, self-knowledge, self-concept formation, self-esteem, and self-regulation. For example, one can talk to oneself about the type of person one is or about a pain experienced in one’s stomach, which results in greater self-knowledge and richer self-concept, and/or awareness of one’s physiological sensations, etc., insofar as this verbal self-analysis is done in a transparent and honest fashion (see below). (2) Self-reflection induces or activates inner speech. For example, a group of people intensely observe John, who starts talking to himself about what might be wrong about his looks. (3) I suspect that most of the time self-reflection and inner speech parallel one another, that is, there are constant and rapid back and forth movements between these two activities. The previous illustration actually works well here too: The observing group of people induce self-focus (Carver & Scheier 1978), which initiates inner speech (“Why are these people looking at me?”), which further amplifies self-reflection (“Perhaps what I’m wearing is inappropriate?”), and so forth. Note that these possible causal directions are not mutually exclusive, meaning that they can all be true. One can talk to oneself about oneself (inner speech --> self-reflection) in the morning (for example), become self-aware and start talking to oneself as a result (self-reflection --> inner speech) in the afternoon, and engage in a mixture of these (inner speech <-> self-reflection) in the evening or throughout the day. Most of the empirical evidence and theoretical ideas discussed in this chapter will pertain to the first causal direction (inner speech --> self-reflection).

1 See Table 1 in Morin (2005, pp. 119–20) for several additional authors.
I am by no mean endorsing an extreme view of this inner speech function. For instance, I disagree with strong statements such as “Inner speech seems to be a prerequisite for awareness of an inner self” (Werning 2010, p. 774) and “I talk (to myself) therefore I know that I exist” (Schlinger 2008, p. 60). For one thing, self-reflection can be produced by multiple other cognitive, non-cognitive, and social means, as described in detail elsewhere (Morin 2004). In addition, I explicitly acknowledge that some form or level of self-reflection is possible without inner speech. As a case in point, consider pre-verbal infants and some non-human animals who at least exhibit bodily awareness as measured by self-recognition (Amsterdam 1972; Gallup 1985). That is to say, inner speech most likely is not required to achieve lower, more perceptual forms of self-referential activities. The argument, however, is that higher, more conceptual (abstract) pieces of self-information require self-verbalization in order to be captured by the self (Morin & Hamper 2012). Perceptual (sensory) self-information results from one’s direct experience with oneself (e.g., the body) or environmental stimuli (e.g., other persons, mirrors) that identify the self. Conceptual self-information is anything about the self that is not available to immediate perceptual experience. Perceptual self-information such as one’s face during self-recognition, because it is visual and concrete in nature, presumably does not need to be verbally labelled (e.g., “this is my face”) in order to be recognized as one’s own. Reflection on more abstract self-dimensions such as intentions however, possibly requires inner speech (e.g., “I want to go fishing”) to be fully brought to one’s attention (see Morin & Hamper 2012 for supporting evidence).

Note that inner speech use does not automatically guarantee the acquisition of accurate self-information. People can engage in dysfunctional, self-deceptive self-talk, distort or deny self-information for self-protective/enhancing purposes (Alicke & Sedikides 2009), and thus misrepresent their selves. People in general believe that they genuinely know themselves, but research rather suggests they lack self-knowledge given the significant gap that exists between self-ratings of personality traits (for example) and others’ ratings of those same traits (Vazire & Mehl 2008). This being said, it is likely that not using inner speech for introspective purposes will impede self-reflective activities and the development of a realistic and well-articulated (i.e., complex) self-concept (Morin & Joshi 1990).

Some may propose that the idea of inner speech underlying self-reflection is self-evident and “goes without saying” (meaning, does not really deserve to be explicitly stated). I beg to differ, as some psychologists do believe that language, and thus inner speech, have nothing to do with self-awareness—e.g., those who locate the self in the right mute hemisphere or propose that (non-verbal) primates are fully self-aware (Keenan et al. 2003). Indeed, Keenan and colleagues (2003, p. xxiii) famously stated that “The idea that the highest form of consciousness depends on language is no longer tenable”. These authors base their claim on the belief that self-face recognition represents an adequate operationalization of self-reflection (including access to one’s thoughts) and that self-recognition is associated with right hemisphere activity. I have
repeatedly argued elsewhere (e.g., Morin 2010) that (1) self-recognition and self-reflection ought not to be equated, the former most likely indicating bodily awareness only (Mitchell 2002), and (2) self-reflection is not selectively located in the right hemisphere—if anything, it more importantly relies on left hemisphere activity, as shown in a meta-analysis of numerous brain-imaging studies of self-reflection (Denny et al. 2012).

At any rate, my view is that sometimes what seems to be obvious nonetheless needs to be stated; besides, many dimensions to the problem of the relation between inner speech and self-reflection have not been properly addressed—for instance: what evidence exists in support of this relation? What are the underlying mechanisms explaining how self-reflection and inner speech interact? I now turn my attention to these two questions.

11.4 Empirical Evidence

In this section I present six lines of evidence in support of the self-reflective functions of inner speech: (1) positive correlations between measures of self-related constructs and inner speech, (2) self-awareness deficits following inner speech loss, (3) involvement of the LIFG (main brain area generating inner speech) in self-reflection tasks, (4) frequent self-reported inner speech about the self, (5) inner speech role in awareness of mind-wandering, and (6) the self as narrative.

11.4.1 Questionnaires

Several studies (e.g., Brinthaupt et al. 2009; Morin et al. 1993) report positive significant correlations between different measures of inner speech and self-related constructs. To illustrate, Schneider (2002), Schneider and colleagues (2005), and Siegrist (1995) observed a 0.50 correlation between the Inner Speech Scale (ISS) and the private subscale of the Self-Consciousness Scale (SCS; Fenigstein et al. 1975). In other words, people who frequently think about private aspects of the self (e.g., “I generally pay attention to my inner feelings”) often talk to themselves about themselves (e.g., “If I am not feeling well, I often talk to myself about my state”). A more modest (0.30) correlation exists between a measure of the activity of talking to oneself about oneself (i.e., self-reflective inner speech) and self-concept complexity (Morin & Joshi 1990): participants who describe themselves in great details tend to talk to themselves about themselves more, and vice versa. Related to this, people who score low on the Self-Concept Clarity Scale (Campbell et al. 1996), a measure of the extent to which the contents of an individual's self-concept are clearly and confidently defined, internally consistent, and temporally stable, tend to score high on the self-evaluative subscale of the Varieties of Inner Speech Questionnaire (McCarthy-Jones & Fernyhough 2011). deSousa and colleagues (2016) propose on that basis that people who tend to struggle with their sense of self frequently evaluate themselves using inner speech.
11.4.2 Self-reflection deficits following inner speech loss

Whereas the previous line of research does not entail causation, the observation that inner speech loss leads to self-reflection impairment does. In her 2006 book “My stroke of insight”, Jill Bolte Taylor details her experience of suffering from a stroke which caused inner speech loss. A close inspection of her experience (Morin 2009) suggests that the loss of the ability to talk to herself caused a host of self-reflection deficits such as a confused sense of individuality, problems retrieving autobiographical memories, and lack of self-conscious emotions. A former aphasic patient (Moss 1972, p. 10, italics added) described his experience as follows:

I had lost the ability to converse with others, I had also lost the ability to engage in self-talk. In other words, I did not have the ability to think about the future—to worry, to anticipate or perceive it—at least not with words. Thus for the first four or five weeks after hospitalization I simply existed.

Helen Keller contracted an illness when very young which left her both deaf and blind—thus incapable of developing normal language. She eventually received special and sophisticated training, allowing her to acquire language skills after several years of mutism. She summed up her inner experiences before language development as follows (in Salzen 1998, p. 307): “Before my teacher came to me, I did not know that I am. I lived in a world that was a no world… When I learned the meaning of ‘I’ and ‘me’ and found that I was something, I began to think. Then consciousness first existed for me.” Keller’s case does not explicitly mention inner speech, but the assumption is that Helen did lack inner speech given that social (other-directed) speech precedes self-directed (inner) speech (Vygotsky 1943/1962). Lacking the former, as in Helen’s case, most likely means she was lacking the latter as well. Note however that her situation is complicated by the fact that she was raised in total isolation—a potentially important confounding variable.

11.4.3 LIFG/inner speech involvement in self-referential tasks

As indicated earlier (Section 11.2.2), the left inferior frontal gyrus (LIFG) represents one area thought to sustain inner speech activity. Morin & Hamper (2012) performed a meta-analysis of 130 self-referential brain imaging studies in various self-domains, including agency, self-recognition, emotions, personality traits, autobiographical memory, prospection, and judgments. A typical self-reflection task asks participants to decide if personality traits describe them or not. (Also see Section 11.2.1, last paragraph.) Specifically, in Craik et al. study (1999), volunteers judged trait adjectives under four separate PET scan conditions: (a) relevance to self, (b) relevance to a well-known public figure, (c) social desirability, and (d) number of syllables. In our meta-analysis we observed an activation of the LIFG (and thus, presumably, inner speech use) in 55 percent of all studies reviewed. Note that a LIFG activation is reported only in 16 percent of studies that do not involve self-reflection, such as when attention or perception tasks are employed (Cabeza & Nyberg 2000). This represents strong
evidence to the effect that inner speech is often used by participants working on various self-reflection tasks. The highest LIFG activation rate (77 percent) was observed in studies pertaining to the retrieval of autobiographical information—that is, remembering one’s past. The LIFG was significantly more recruited (64 percent) during conceptual tasks (e.g., prospection, traits) than during perceptual tasks (25 percent; agency and self-recognition). This suggests that whereas perceptual self-dimensions (e.g., one’s face) can be consciously perceived without words, conceptual self-aspects (e.g., autobiography; prospection) more likely demand verbalization in order to be brought to consciousness, as discussed in Section 11.3. Note that I acknowledge the possible alternative explanation that LIFG activation (and inner speech use) may have to do with the conceptual nature of the tasks rather than with its being self-referential per se.

11.4.4 Self-reported inner speech about the self

A growing number of thought sampling/listing studies show that people often recruit inner speech when thinking about the self. This observation obviously supports the self-reflective functions of inner speech. For example, when asked to list what they typically talk to themselves about, participants report engaging in self-talk about themselves more often than any other topic in their lives such as their physical and social environments (Duhnych et al. 2017; Morin et al. 2011). More specifically, university students report talking to themselves about (in decreasing order of importance) their emotions, physical appearance, relationships, problems, food intake, behavior, financial situation, stress, performance, desires, education, beliefs, others’ opinion of themselves, and goals. Comparable inner speech self-oriented content was observed in a thought sampling study. Uttl and colleagues (2012) sent eight random cell phone text messages per day for two weeks to ninety-six undergraduate university students, each message asking them to report whether they were talking to themselves, what they were talking to themselves about, how confident they were in their report, and what activity they were engaged in. Participants responses were coded using a previously developed coding scheme into specific inner speech categories. Other studies report a substantial use of inner speech (together with mental imagery) during autobiographical recall and prospection—that is, during mental time travel (e.g., D’Argembeau et al. 2014), which is consistent with what was just discussed above in subsection 11.4.3. For example, in a thought sampling study, D’Argembeau and colleagues (2011) observed more inner speech recruitment when participants were engaged in action planning and decision-making, and more mental imagery use when daydreaming and self-reassuring. They also noted differences in inner speech ratings across types of future thoughts, with positive thoughts containing less inner speech than both neutral and negative thoughts.

11.4.5 Inner speech and awareness of mind-wandering

A 2017 article by Bastian and colleagues presents evidence suggesting that inner speech facilitates metacognition of mind-wandering episodes. Mind-wandering
occurs when people experience thoughts not focused on a single topic for a long period of time, particularly when they are engaged in an attention-demanding task (Diaz et al. 2014). Typically, people are unaware of experiencing mind-wandering episodes. The authors report three experiments. Experiment 1 relied on articulatory suppression, where participants were asked to repeat “a-b-c” aloud, which obviously interferes with inner speech. Results showed that articulatory suppression, compared to a foot-tapping control condition, decreased the number of spontaneous reports of mind-wandering while performing a main task consisting in pressing a space bar as fast as possible in response to pre-selected digits. Also, self-caught (spontaneous) mind-wandering episodes, which are by definition aware episodes, were reported to be more verbal than probe-caught reports of mind-wandering. In Experiment 2, participants were required to press a space bar as fast as possible in response to various words and images but to withhold their response when presented with one no-go target concept randomly picked for each participant. Critically, the word/picture ratio differed so that some participants were exposed to many more words than images, and vice versa. Greater exposure to words was designed to increase verbal working memory and inner speech activity. Random probes asked volunteers if they were currently aware of having a mind-wandering episode. Results showed that an increase in verbal processing (and verbal working memory/inner speech activation) did not affect performance nor the amount of mind-wandering but did increase awareness of mind-wandering. In Experiment 3, participants were randomly probed throughout the day in their natural environment using a thought sampling smartphone application. Probes asked participants if they were mind-wandering at the instant they were interrupted, to what extent they were aware of experiencing a mind-wandering episode, and if they were thinking in words or images. Results showed that awareness of mind-wandering reports made on smartphones positively correlated with inner speech vividness, but not with visual vividness. Together, these findings support the view that inner speech, unlike visual imagery, facilitates awareness of mind-wandering. Here, meta-awareness of mind-wandering episodes is taken as a specific case of self-reflection.

11.4.6 The self as narrative

One theoretical approach to the self which is consistent with the self-reflection view of inner speech is Narrative Psychology, alternatively known as Narrative Identity and Dialogical Self (see Bruner 1996; D’Argembeau et al. 2014; Harre 1983; Hermans 1996; McAdams & McLean 2013). The basic premise of Narrative Psychology is that human beings make sense of their personal experiences by constructing stories about them and narrating (telling) them to oneself and others; part of the process (less pertinent for us here) includes listening to stories of others. Self-storytelling allows one to reconstructs one’s autobiographical past and imagine one’s future (again, mental time travel as discussed in Section 11.4.4), which leads to a sense of unity, purpose, and understanding of the self (D’Argembeau et al. 2014). Although it is implicitly understood that this narrating/telling of self-stories recruits language and inner speech, Hermans (1996) establishes an explicit connection by stating that we engage in internal
dialogues in order to better understand others’ possible views of ourselves (also see Blachowicz 1999).

Indeed, some studies show that it is possible to improve self-reflective skills in psychiatric populations through dialogic self-therapy. To illustrate, Lysaker and colleagues (2007, 2011) present case studies of schizophrenic patients undergoing therapy aimed at increasing the use of dialogues—as opposed to monologues—with themselves. Schizophrenic patients are known for self-reflection deficits (Van der Meer et al. 2009) and the dialogic self-therapy encourages them to perceive themselves under many different second-person perspectives, thus improving self-reflection and self-knowledge. Treatment in the Lysaker et al. (2007) study involved forty-five-minute weekly sessions for more than thirty-two months. During these sessions, the client was encouraged to make his own sense of his life story by having the therapist act as an audience for and with whom he was constructing the story. The therapist’s main goal was to use his voice as an aid to the client in being able to think about his own thinking and adopt the position as author of his life. Results showed increases in scores on the Metacognitive Assessment Scale (MAS; Semerari et al. 2003) following a thirty-two-month dialogic self-therapy treatment. The MAS measures the following abilities: thinking about one’s own and others’ mental states, seeing the world as existing with others having independent motives, and implementing effective strategies to cope with problems. As such, the MAS does not represent a direct measure of self-reflection but is linked to it.

Related to Narrative Psychology is the study of multicultural identity formation, an approach which looks at how multicultural individuals manage their different identities within the self. Multicultural people often need to navigate the different norms and values associated with their multiple (and potentially incompatible) cultural identities, which obviously involves self-reflective skills. Interestingly, individuals with integrated (as opposed to compartmentalized) cultural identities report greater narrative coherence as measured using a qualitative coding scheme developed by Yampolsky and colleagues (2013). Narrative coherence involves a rich narration of participants’ cultural life story characterized by well-structured stories and containing a lot of expressions of emotions, mentions of attempts at integration, as well as contextual information. In short, self-stories of integrated multicultural individuals are nuanced and complex, suggesting that they were created through extensive self-talk about one’s diverse cultural experiences.

11.5 Theoretical Considerations

In this last section I address the following two questions raised by Churchland (1983, p. 88): “What is it about self-consciousness such that it requires linguistic representations, and what is it about language such that it brings about the special capacity for self-consciousness?” In other words, what is the theoretical nature of the link between inner speech and self-reflection? I will suggest that (1) inner speech can reproduce social mechanisms leading to self-reflection, (2) self-reflection represents a
problem-solving process that is greatly facilitated by the use of inner speech, (3) inner speech can “translate” self-information into a verbal representation which creates a wedge within the self that makes self-observation possible, and (4) verbal labelling via inner speech allows the use of a rich vocabulary about oneself which helps to differentiate between subtle physiological sensations and emotional responses.2

11.5.1 Inner speech can reproduce social mechanisms leading to self-reflection

As discussed in Section 11.3, there are multiple mechanisms that can all lead to self-reflection (Morin 2004). Among these are social mechanisms, as proposed by Mead (1934) and Cooley (1902). According to Mead, the presence of others motivates the self to take their mental perspective in order to obtain an objective point of view on oneself, which then produces self-reflection. For example, John is reading an anti-abortion pamphlet (written by others) and tries to understand the opinion presented (others’ perspective), which makes him question his own view on the topic—do I agree with this? What is my view? (self-reflection). Mead agrees that this social mechanism can be internalized and greatly expanded by the use of inner speech. The self can engage in fictional conversations with itself, verbalizing different—and thus more objective—points of view about oneself (Morin 2005). To illustrate, one could self-verbalize “This driver remained calm and composed despite being abruptly cut off by that other driver (other’s perspective). I would have lost it! (self-reflection) Yes, I am impatient in that type of situation… (self-knowledge)”. Furthermore, the self can talk to itself imagining the Generalized Other—the internalized perspective of others (Athens 1994): “My Dad really wants me to do well in school, he’s financially helping me getting an education (other’s perspective)… I just flunk this exam, I feel shameful (self-reflection), he won’t like it!” Thus inner speech can duplicate this social comparison mechanism (Festinger 1954) and makes it possible to expand self-reflection outside of social interactions. Quite simply, without self-talk one could hardly become self-aware outside of social situations (Morin & DeBlois 1989). My view is that the social world represents a necessary but insufficient condition for the emergence of full-blown human self-reflection and self-knowledge. What starts as an interpersonal mode of acquisition of self-information gradually transforms itself into an intrapersonal mechanism of self-reflection. This is compatible with Vygotsky’s view (1943/1962), see below.

Another social mechanism known to induce self-focus was suggested by Cooley: reflected appraisals refer to verbal comments people make about one’s characteristics and behaviors; these allow the self to learn about itself and produce self-reflection. To illustrate, Mike can tell John that he is a hard-working person, or on the contrary, that he is lazy. If many different individuals all tell John the same thing, he might be inclined to believe them and incorporate this self-information into his self-concept, especially if the information is positive and in accordance with John’s current self-view. Indeed, perceived inaccurate (and negative) social feedback is likely to motivate the target

2 See Morin & Everett (1990b) for a fifth proposal—inner speech as an internal mirror.
to resist incorporating this information into one's self-concept. As Eichstaedt and colleagues state (2002, p. 290, my italics), “incoming information about the self is initially comprehended and believed… and results in positive or negative affect consistent with the valence of the information. This minimally cognitive stage is followed by reflective scrutiny involving a comparison with the self-concept”. Surely, this reflective scrutiny recruits inner speech: if John is accused of missing work because of laziness he could very well tell himself “I’m not lazy—I was sick in bed on that day.”

I propose here that this second social mechanism can also be internalized, reproduced, and thus extended, by inner speech. The self can re-address (and re-evaluate, as seen above) appraisals from others by using inner speech (Morin 2005). People’s observations and inferences about one’s thoughts, feelings, and behaviors (e.g., “you are a hard-working person”) might imprint on one’s inner speech a tendency to address such self-informative remarks to oneself (e.g., “I am a hard-working person”). Although no direct empirical evidence exists in support of this idea, consider Burnett’s (1996) work, which shows that children who perceive that significant others talk positively to them appear to have higher positive self-talk and lower negative self-talk than children who report that significant others say negative things to them. Also, children who perceive that significant others say negative things to them appear to have higher negative self-talk and lower positive self-talk than children who report that significant others say positive things to them.

The aforementioned ideas pertaining to the internalization of social mechanisms involved in self-reflection can be linked to a Vygotskyan conception of inner speech (Vygotsky 1943/1962). Fernyhough (e.g., 2008; 2016) has recently developed a model based on Vygotsky’s work where the understanding of other minds, and by extension of one’s own mind, relies on social and internalized dialogue. The emergence of language and the child’s gradual participation in linguistic exchanges mark the beginning of a progression from social dialogue, via the intermediate stage of private speech, towards completely internalized inner dialogue. The resulting dialogic forms of thought play an important role in children’s capacity to adopt and operate with the internalized perspectives of others. In a secondary developmental pathway, conversations about mental states with caregivers help children to learn the correct usage of mental-state terms and concepts, allowing them ultimately to enter into effective ways of explaining and predicting the behavior of others—and again by extension, their own behavior.

11.5.2 Self-reflection as a problem-solving process

As discussed in Section 1.2, inner speech has been shown to play a positive role in problem-solving. More specifically, Kendall and & (1981) have identified four

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3 Some readers may suggest that in addition to inner speech articulated in natural language, some other forms of “language of thought” such as mentalese could perform comparable self-reflective operations. I do not deny this possibility, which would entail that other cognitive systems might participate in self-awareness. This is consistent with an important point made earlier (Section 11.3), where I explicitly acknowledged that self-reflection can be produced by multiple cognitive, non-cognitive, and social means in addition to inner speech.
categories of effective inner speech in problem-solving: (1) a precise definition of the problem ("OK. What's the problem? What am I supposed to do?") , (2) an effective approach to the problem ("I should find a strategy to solve this problem") , (3) a maintenance of one's focus on the problem ("No, that's not important. I must focus on this instead") , and (4) a progress evaluation that includes praise ("Good! I did it!") or strategy readjustment ("No, that's not the way to go. That's OK—I must try again and do that instead").

I suggest that the self can be conceived of as a "problem" to be solved (e.g., Who am I? What did I just do? How do I feel?) and that inner speech greatly facilitates this problem-solving task, as follows (Morin 2005): (1) clear definition of the problem: "How did I do?", (2) optimal approach to the problem: "I will try to remember what happened and everything I did in detail", (3) problem-solving verbalizations: "The first thing I did was Z. Then X happened and I then said W", and (4) self-evaluative comments: "Good! I'm getting somewhere!", or self-directive notes: "I don't need to take this into consideration, it's not pertinent."

11.5.3 Self-distancing/decoupling

A third way of looking at the nature of the connection between self-talk and self-reflection is based on the notion that the former can "translate" self-information into a verbal representation which creates a distance between the observer (the self) and self-information, which in turn facilitates self-observation (for related ideas see Bernstein et al. 2015; Neuman & Nave 2010; Puchalska-Wasyl 2016; Zelazo 2004). A basic principle is that an observation is possible only if there exists a distance (a wedge) between the observer and the observed thing (Johnstone 1970). Indeed, as the popular saying goes, one won't be able to see the forest if only looking at individual trees—enough of a distance must exist between the observer and the forest for it to be perceived. By logical extension, self-observation is possible only if there exists a gap between the individual and any potentially observable self-aspect. Verbalizing to oneself "I feel happy" creates a redundancy within the self because what was an emotion of happiness is now re-presented to the self in words. Hence instead of only one thing, the raw emotion of happiness (the presentation), we now have two elements: the raw emotion and its verbal re-presentation. When the self only experiences the raw emotion (or whatever else) it is too close to it, too immersed in the experience, to really perceive it. The verbal representation (via inner speech) produces a redundancy which also creates more "psychological" distance between that particular piece of self-information and the self. I postulate that this distance caused by self-talk significantly facilitates self-observation and the acquisition of self-information.

I further propose that there are different degrees of distance, where on one hand, distancing from the immediate experience is allowed by the creation of the verbal representation itself, and on the other hand, distance is achieved by certain aspects of this representation, such as the grammatical subject chosen; verbal labelling per se would produce distance and the use of 'you' would increase it further. Indeed, recent
research by Kross and colleagues (2014) shows that using “you” instead of “I” when talking to oneself enhances self-distancing as discussed above. In one of their studies, the team asked participants to analyze their feelings (e.g., experimentally induced anger) using first-person pronouns (e.g., I) or non-first-person pronouns (e.g., you). Participants were also invited to indicate the degree to which they adopted the visual perspective of an observer as they reflected on their feelings. Results showed that volunteers in the non-first-person group displayed higher levels of visual self-distancing (mentally looking at oneself as an observer) than participants in the first-person group. This suggests that in general, people use non-first-person pronouns (and their own name) when thinking about other people. Thus, when people use these parts of speech to refer to themselves (“You feel happy, John”, as opposed to “I feel happy”), it enhances self-distancing by leading them to think about themselves as though they were somebody else.

11.5.4 Verbal labelling

One last possible explanation as to why and how inner speech produces self-reflection can be stated as follows: verbal labelling of self-characteristics, inner experiences, and behaviors allows the self to deploy a rich vocabulary about oneself which helps differentiate subtle physiological sensations and emotional responses (Gibson & Foster 2007; Morin 2005). It is one thing to say to oneself “I feel sad”; all that is learned about oneself by using the verbal label “sad” is that one... is sad. Consider this in contrast: “I feel sad... actually, I also feel disappointed... and possibly angry.” The additional use of adjectives through verbal labelling leads to a richer understanding of what the person is emotionally experiencing. Lindquist and colleagues (2015) propose that language increases attention to sensory information (e.g., a beating heart) and produces feedback to infuse self-perceptions with additional information (e.g., a fear perception), causing a discrete experience of emotion to become conscious. This proposal is based on solid empirical evidence. For instance, when participants experience emotions in a fMRI scanner, they not only have increased activity in limbic/paralimbic brain regions that are associated with emotional processing—they also exhibit activity in lateral prefrontal brain regions associated with language processing.

I submit that this verbal labelling effect applies to all aspects of the self, not just emotions. To illustrate for behavior, John can say to himself “I ran faster than all the others”; he could also continue “My movements were more precise, I was more agile than my competitors.” A stronger account of this idea is that one cannot actually become fully aware of some self-aspects (e.g., attitudes) without naming (verbally labelling) them. For example, how could one realize that one is holding anti-Semitic attitudes or hedonistic values without having to verbally label these by saying to oneself “I believe in antisemitism/hedonism”? As Bem (1972) would argue, however, one can learn things about oneself just by observing one’s behavior (self-perception theory; “All I do is play golf and drink beer... I like to have fun... I am a hedonistic person”). But note that (1) this process of self-perception itself most likely activates inner speech,
as per my example, and (2) verbal labelling is still required for the person to conclude that “I am hedonistic.” Thus it seems that what is important is not the process of labelling itself, but the fact that people are able to tag their mental states with a larger number of more nuanced labels.

11.6 Conclusion

In this chapter I have presented several empirical observations and theoretical considerations in support of the view that inner speech serves important self-reflective functions. In doing so, I have hopefully made it clear that inner speech is involved in various other self-related processes in addition to self-reflection per se—self-regulation, self-description, self-evaluation, self-concept formation, ToM, mental time travel, and more. I compare inner speech to a flashlight used to find one’s way through a dark room: without light, approximate perception is still possible (e.g., by using touch to discern objects), but perception becomes much more vivid and precise when one puts the flashlight on. By analogy, one can learn about oneself without inner speech (in the dark, e.g., via reflected appraisals), but self-reflection and the resulting self-knowledge are considerably facilitated when one talks to oneself about oneself—when the light is on.

This view of inner speech as a cognitive self-reflective device raises some key questions in clinical, philosophical, and comparative psychology. I leave the reader with these. Are self-reflection deficits observed in autistic and schizophrenic individuals associated with inner speech impairment? Some current research suggests so (Williams & Jarrold 2010). Are there two independent streams of (self-) consciousness in the isolated hemispheres of split-brain patients? I propose that there are two unequal streams, the left (verbal) one being significantly more self-aware that the right (mute) one (Morin 2001). Are non-human animals, chimpanzees, dolphins, elephants, and magpies in particular, self-aware and able to engage in ToM, as some have claimed on the basis of self-recognition skills observed in these animals (see Soler et al. 2014)? Since these creatures all lack inner speech, my opinion is that they certainly do not exhibit full-blown human self-reflective capacities (Morin 2010).

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