

Intrapersonal Communication: the Hidden Language

(Part 1 of a series of 5)

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Abstract:

This article is the first in a series of five which seeks to site scientific psycho-hypnotherapy on a firm linguistico-philosophical foundation. We find that for consciousness, both “hardware” (the brain’s prefrontal cortex) and “software” (psychological mechanisms such as imagery and inner speech, as well as the content of self-reflection), are necessary. Crucially, it is found that part of the filtering process which takes place in the transfer of information from the external world to the internal or psychic world via the sensory channels, renders the information in the form of language, and this leads to the establishing of a “self-talk.” We find that in terms of the “psychological software” for self-awareness, internal dialogue is immensely important. We then go on to summarise the scientific background to our understanding of the nature and prevalence of self-talk and its relationship to self-awareness, in terms of meaning-making and shaping reality, both private and consensual. At this point we turn to Wittgenstein who believed that “philosophic-linguistic therapy” could be at the heart of clearing up many of life’s conundrums, and we sketch out, in practical terms, how such therapy might be applied to facilitate creative psychic change and personal development. We aim, at the conclusion of these discussions, to show how a “therapy for self-talk,” as engendered in the tools and techniques of Neuro-linguistic Programming and Psycho-chaotic Semiotics can produce apparently “magical” results in the creation of unfolding, positive realities of choice.

Keywords:

Computational model, Hardware, Hypnotherapy, Internal dialogue, Linguistics, Neuro-linguistic Programming, NLP, Philosophy, Psycho-chaotic Semiotics, Self-talk, Software, Psychotherapy, Wittgenstein.

Introduction to the Series

This series of essays continues the in-depth discussions exploring the nature and efficacy of language, hypnosis, and altered states, the foundations of which have been established in previous work [1], [2], [3], [4], [5]. It begins by summarising the background to our understanding of the nature of self-talk and its relationship to self-awareness, in terms of meaning-making and of shaping reality, both private and consensual. It goes on to show how the filtering of sensory data and the resulting "linguaging" of human experience, tends to build negative psychic structures which are limiting at best, and at worst, damaging, to a person's individuation. Clinical studies on the role and effects of self-talk are presented, together with theoretical models of its modes of operation, both psychological and physiological. We then turn to Analytical and Humanist approaches to therapeutic utilisation of internal dialogue and compare and contrast these with tools supplied by Neuro-linguistic Programming, and with meditation practices. The "creative" and metaphorical aspects of positive, lasting therapy based on utilisation of intrapersonal communication are stressed throughout, particularly in the light of Wittgenstein's idea of a "philosophical therapy for (and through) language", and the conception of gaining a "perspicuous representation" to aid in clarifying a client's worldview [6].

व्यक्तगितसंवादः गूढभाषा

The previous articles [1], [2], [3], [4], [5] discussed in detail historical and philosophical approaches to the question of internal dialogue and intrapersonal communication, and concluded along with Wittgenstein [6] that a kind of mystico-philosophico-linguistic therapy could be at the heart of clearing up many of life's conundrums. From this idea we turn to the scientific background to the nature and prevalence of self-talk and ask how, in

practical terms, such Wittgensteinian therapy might be applied to facilitate creative psychic change and personal development. We aim, at the conclusion of these discussions, to show how a "therapy for self-talk," as engendered in the tools and techniques of Neuro-linguistic Programming and Psycho-chaotic Semiotics [7], can produce apparently "magical" results – resulting in our becoming "Lingwiz'ds of Is" [8] in the creation of unfolding, positive realities of choice.

Let us remind ourselves, at this point, of the nature of internal dialogue – Meichenbaum [9], for example, states that "In psychology, the term inner speech usually signifies soundless, mental speech, arising at the instant we think about something, plan or solve problems in our mind, recall books read or conversations heard, read and write silently. In all such instances we think and remember with the aid of words which we articulate to ourselves. Inner speech is nothing but speech to oneself, or concealed verbalisation, which is instrumental to the logical processing of sensory data, in their realisation and comprehension within a definite system of concepts and judgments" [9]. Shedletsky [10] uses communication theory to site intrapersonal communication (IAPC) as "talking to ourselves" [11] but with the triad of "sender – transmitter – receiver" all located in the same individual, and Fletcher comments that "to a large extent intrapersonal communication from a psychophysiological perspective is the interior neural manifestation of the social process of communication" [12]. Pearson and Nelson [13] go further by noting that intrapersonal communication it also used in "internal problem solving, resolution of internal conflict, planning for the future, emotional catharsis, evaluation of ourselves and others" [11]. There are various facets to this inner speech and "The dialogue within the self proceeds on many levels. Sometimes it is a dialogue between the self as engaged in its various responsibilities and affections and the self which observes these

engagements. Sometimes the dialogue is between the self in the grip of its immediate necessities and biological urges, and the self as an organisation of long-range purposes and ends. Sometimes the dialogue is between the self in the context of one set of loyalties and the self in the grip of contrasting claims and responsibilities” [14]. The situation is complicated by the fact that the expressions of internal dialogue are manifold and “The elements of inner speech are found in all our conscious perceptions, actions, and emotional experiences, where they manifest themselves as verbal sets, instructions to oneself, or as verbal interpretations of sensations and perceptions. This renders inner speech a rather important and universal mechanism in human consciousness and psychic activity” [15]. So, if we choose to define intrapersonal communication as “... the physiological and psychological processing of messages that happens within individuals at conscious and non-conscious levels as they attempt to understand themselves and their environment” [16], then we concur that “Those intrapersonal processes are the locus of meaning ... and provide the impetus for action. Toward that end, our unique, individual world-views form the basis for our behavior. Your intrapersonal reality is giving meaning to these words and is the cause of the response you have as you read them” [17], [18]. We shall return to the idea of intercommunicating psychological “parts” – to “intrapersonal processes as locus of meaning” – and to creating, maintaining and modifying “unique, individual world-views” in terms of modern psychotherapeutic practice in the remainder of this article.

Now it does appear true in general that “... self-awareness is mediated by self-talk: when self-aware, the individual, more often than not, talks to himself or herself” [19], although the “... cognitive processes underlying self-awareness are still unknown and extremely difficult to study in an experimental paradigm” [19]. Despite these difficulties we

could summarise that “Intrapersonal reality [intrapersonal perception] is, in essence, the view of the world within each of us. It is the perception of reality that people construct for themselves ... Although it is substantively influenced by interaction with others, it is as unique as a fingerprint and continually growing and being reshaped. When we hear people say ‘That is her reality’ (regardless of their intended meaning), we are hearing people refer to intrapersonal processes” [17]. If we focus on cognition then this “... leads us to questions concerning individual differences and the influence of goals, motivation, language, discourse structure, context, memory, social rules, and imagination. It points to the significance of perception vis-à-vis overt behavior. With regard to a focus upon cognition, we can point to numerous studies that teach us that the perception of behavior is at least as important as the behavior itself and that the perception is a function of the individual and her or his perception of the context” [20]. Following on from this Shedletsky opines that “... contextual variables influence communication by means of their impact upon perception. Put in other words, we ought to expect social-psychological variables to operate differently in differing contexts, and they do ... Still, another way of getting at the point here is to note that much (perhaps all) of ordinary human communication is not limited to literal meaning ... Having said that, just what literal meaning and indirect meaning are, and just how we make literal and indirect meaning, are precisely the questions begging for exploration” [20]. If we now turn to psychopathology and mental health, we can clearly state that “Hearing voices for the ordinary individual is, in this instance, different from the auditory hallucinations heard by a schizophrenic ... and hearing voices is not necessarily an unhealthy phenomenon” [21], [22]. We also realise that “While mentally ill patients sometimes hear voices, individuals who are not mentally ill also hear voices, including respected leaders and a great variety of the general public ...”

[21], [23]. And we can go on to reframe the old adage that “... talking to yourself is the first sign of madness – and that replying to yourself confirms the diagnosis. Well here's some good news – we all talk to ourselves. It's only a sign of madness if we're all mad in some way (a possibility I'm not ruling out by the way)” [24]. We can formulate the understanding that “much (perhaps all) human communication is not limited to literal meaning” in the context of Fletcher's comment that “Intrapersonal communication is the interior process of the individual by which reality evolves and is maintained” [12]. Indeed, “We talk to ourselves incessantly about our world. In fact we maintain our world with our internal talk. And whenever we finish talking to ourselves about ourselves and our world, the world is always as it should be. We renew it, we rekindle it with life, we uphold it with our internal talk. Not only that, but we also choose our paths as we talk to ourselves. Thus we repeat the same choices over and over until the day we die, because we keep on repeating the same internal talk over and over until the day we die. A warrior is aware of this and strives to stop his internal talk” [25]. We could go so far as to say that “The internal dialogue is what grounds people in the daily world. The world is such and such or so and so, only because we talk to ourselves about its being such and such and so and so. The passageway into the world of shamans opens up after the warrior has learned to shut off his internal dialogue” [26]. And herein lies the “secret of magic” [7], [8] – that “To change our idea of the world is the crux of sorcery ... and stopping the internal dialogue is the only way to accomplish it. The rest is just pudding” [26]. The import of this is that “When a warrior learns to stop the internal dialogue, everything becomes possible; the most far-fetched schemes become attainable” [26]. And we might add that “to change and shape the internal dialogue is the icing on the cake.” We compare and contrast various “mascirelagic” [27] approaches to the “crux of sorcery” in depth in what follows.

The importance of (private) intrapersonal processes in comparison with (social, public) interpersonal processes in the development of self-awareness is that “... the organisation of the brains' higher functions has been shaped by the social environment in which it evolved. In this perspective, it can be suggested that the social world is a necessary but insufficient condition for the emergence of self-awareness. For example, our motivation to communicate with others might very well be social in origin, but it has to be mediated by cognitive (linguistic) processes in order to manifest itself effectively. By the same token, once initiated by the social environment, self-awareness would then need to be taken over and extended by cognitive processes. Without these mental operations reproducing what is taking place in the social world (i.e., if we were only to have social interactions as a source of self-information), we could hardly become self aware outside social situations ... ” [28]. So, in the public, social domain, “‘Negotiated perception’ involves the interaction of individuals who assign meaning and understanding to the world around them. Reality is not created by negotiated perception; rather it is given meaning through consensus. That meaning is verified and revised by a continual process of testing and retesting. If the meaning attributed does not match what is known or found in reality, it is adjusted or replaced” [17]. This “adjustment or replacing of meaning” can be seen to extend to the private, internal domain, where “‘Intrapersonal perception’ takes a similar course. Our individual perceptions do not create reality, but rather give meaning to the world around us (including to the ‘negotiated perceptions’ of groups with which we interact). We act on the basis of how we view the world, but neither reality nor the negotiated perceptions within which we live tolerate all views equally well. Standing in the path of an on-coming train, regardless of the meaning attributed to the locomotive, carries certain verifiable consequences. Similarly, holding a meaning that differs

dramatically from that of the surrounding negotiated perception carries societal consequences” [17]. Now if we contrast private and social perception, we can make a link back to the “voices” heard by the “normal” person, the schizophrenic and the saint discussed above. We see that “Our intrapersonal perception may vary in minimal or significant ways from the negotiated perceptions of society because of our own unique neuronal, sensory, and perceptual processes, as well as our life-experiences. Heroes, rebels, and martyrs often find their intrapersonal perceptions at odds with the negotiated perceptions of the societies in which they live. The difference may be so significant that the individual is eliminated or the negotiated perception is radically altered. While some individuals or groups may develop very similar perceptions, those perceptions are never completely shared – some differences are always present. Negotiated perceptions may shape and mould our intrapersonal perceptions, but those intrapersonal perceptions are ultimately unique. While the contribution of our society is vast and fundamental, the individual still distinctly shapes that contribution” [17]. The mechanism by which “the individual distinctly shapes intrapersonal perceptions” is through “Inner speech [which] can internally reproduce and extend social and physical sources of self-awareness. If we did not have the capacity to talk to ourselves, self-awareness would only be possible in the presence of others or when confronted by physical stimuli. Even then, most perceived self-information could not be cognitively processed. One could compare inner speech to a flashlight used to find one’s way through a dark room [29]. Without the light one will still be capable of approximate perception (and one can use touch to discern furniture and objects [self-information] in the room); but perception (self-awareness) will be much more vivid and precise if one puts the flashlight on” [28]. The relevance of this observation, and the application of linguistic-therapeutic methods to produce “much more

vivid and precise self-awareness,” are a major topic of discussion below.

A summary of previous scientific research on the role of “internal dialogue,” “self-talk,” or “intrapersonal communication” in relation to self-awareness and the shaping of reality is presented in Table 1 (paraphrased and extended from that found in Morin [28]). In this context we should bear in mind, however, that “The very subjective nature of internal dialogue has made it difficult to measure in any objective protocol. Most of the measures of internal dialogue have been extrapolations and after-the-fact, self-reported explanations. These thought-listing and ‘thinking out loud’ approaches have attempted to capture internal dialogue, after the fact, through secondary analysis. By that time, the person reporting earlier thoughts is already having second and third thoughts or internal dialogues, complicating the assessment process. Research on assessing internal dialogue and self statements in socially phobic or anxious clients is becoming more important in both clinical and research settings” [21]. Pedersen [21] has summarised the current status of research on self-talk, and this is given chronologically as follows. First, Fuqua, Johnson, Anderson, and Newman [65] “... point out that human cognition is a complex and elusive target for scientific assessment but that the increased tendency to test the role of cognition in counseling and training shows promise for the future” [21]. Next, we find that Ickes [66] “... has studied attributional styles and covert verbalisations of self-talk by depressed patients to suggest they have a tendency to interpret situations as evidence of their inadequacy, even when that response might be inappropriate. By magnifying their failures and minimising favorable outcomes in their self-appraisals and by making unfavorable social comparisons, they contribute to feelings of inferiority” [21]. Zastrow [67] “... asserts that emotions and actions are caused by what persons tell themselves about events through self-talk rather than what really happens. By changing

the self-talk we can change feelings and actions. Zastrow suggests that positive change through changing self-talk accounts for the effectiveness of client-centered, behavior therapy and psychoanalysis therapies” [21]. Phillips [68] “ ... has also studied ‘inner voices’ as patterns of internal conversation in narrative form as it influences self concept” [21]. Siegrist [69] reviews the literature on inner speech as a cognitive process to mediate self-consciousness and thus inhibit self-deception [21]. Ledermann [70] “ ... describes this as internal muzak, as it influences intrapersonal relationships. What we say to ourselves clearly shapes our behavior in very specific ways” [21].

In his seminal work on the nature and purpose of internal dialogue, Morin states that “The hypothesis of the existence of a relation between language and self-awareness (and/or self-consciousness) is not new. A great number of philosophers, social psychologists, cognitive psychologists and neuropsychologists – just to mention these disciplines – make allusion to this hypothesis” [19]. He postulates that the link between internal dialogue and self-awareness is that “ ... self-talk creates a redundancy of self-information within the self, and with it a distance between self-information and the individual (the self); this distance renders self-awareness possible” [19]. Further to this Morin [71] “ ... suggests that two social mechanisms leading to self-awareness can be reproduced by self-talk. First, engaging in dialogues with oneself and fictitious persons permits the internalisation of others’ perspectives, and addressing comments to oneself about oneself as others might do leads to the acquisition of self-information. Secondly, self observation is possible only when there is a distance between the individual and any potentially observable self aspect as through self-talk, which conveys self information through words in a continuous communication loop” [21]. Morin [19] then goes on to investigate “ ... the characteristics of an effective internal

dialogue for the mediation of self-awareness as a problem-solving task. Self-talk served to focus attention on the task, foster constant self-evaluation, and taking the perspective of others” [21]. If we agree with Morin that “ ... the self can be conceived as a question to be solved (‘Who am I? What characterises me?’), where the unknown result is self-knowledge, and self-information, some data from which a result can be found. (More simply and in so far as an acquisition of information – the process of learning – represents a problem, it could also be suggested that an acquisition of self-information [through self-observation, self-awareness] is a problem as well.)” [19] – then “ ... the process of acquiring self-information can be seen as a problem-solving task ... [and] self-talk can facilitate this process (as it does or any other problem) by promoting a precise formulation and approach to the problem, by adequately focusing attention on the task, and through constant self-evaluation ... taking others’ perspective through self-talk, possessing a rich vocabulary about oneself, and paying attention to the content of one’s self-talk are believed to be important in this respect” [19]. We could alternatively phrase this by saying that “ ... another way to understand the role of inner speech in the acquisition of self-information consists of conceiving the process of self-observation as being a problem-solving process, and self-talk as being a cognitive tool the individual uses to reach a ‘solution’ to this ‘problem.’ In other words, attempts made by the individual to understand himself or herself (Self-awareness), to acquire self-information, can be seen as a problem-solving task” [19]. Kendall and Hollon [72] postulate a variety of mechanisms for this problem-solving [19]:

1. Precise definition and refinement of the problem is done through self-talk, using language such as “Right, what’s the problem? What is it that I need to do?”
2. Effective approaches to solving the problem are sought through language such as “Now, what are the ways to solve this problem?”

3. Focus on important aspects of the problem, and elimination of less important features is gained using language such as “No, I won't concentrate on that; it's not important. I must focus on that instead.”
4. One can utilise evaluative self-statements either: to praise or reward oneself on finding a full or partial positive outcome (“Yes, that's right!”); or, to reappraise and reconfigure one's strategies in the event of negative outcomes (“OK, that doesn't work but I'll give it another go and work more slowly this time”).

Shedletsky is particularly interested in human meaning-making and the shaping of reality, and notes the importance of considering the cognitive operations involved in communication. He comments that “One great benefit ... is that it leads us to look more closely at meaning and meaning-making, rather than at information transmission. I am proposing that the process of acquiring *knowledge of* is not communication, but the process of acquiring *knowledge about* is. In other words, communication is located in the cognitive domain precisely where the cognitive processes underlying *knowledge about* occur. We may *communicate about* our *knowledge of*, but we do not *communicate* our *knowledge of itself*” [20] (italics added). So, in terms of the role of intrapersonal communication in “self-meaning and self-meaning-making” – in “acquiring *knowledge about* the self” – we can agree with Morin that “People understand themselves better when they talk to others about themselves and get reactions and advice about their behaviors, emotions, thought processes, goals, etc. Similarly, people acquire enhanced self-knowledge when they talk *to themselves* about themselves. By extension, we develop a more sophisticated self-concept when we frequently engage in self-talk” [28]. We must bear in mind that “The naming of states – and language-based conceptualisations of states – play a key role [in self-awareness]

... through a process of labelling, categorising, and engaging in language-based modes of representation [internal dialogue], a person not only represents internal states and experiences (sentience) but acquires the capacity to reflect on them ... Reflections can be communicated and discussed with self in inner dialogues as well as with others ... Without language [internal monitoring remains] relatively primitive, vague, unelaborated” [73]. A related aspect of intrapersonal communication is that “One can propose that *verbally describing* the physical self, as opposed to simply *seeing* the self in a mirror, on video, or on a photograph, allows for a better perception of the information and integration of it into the self-concept” [28]. However, there is a downside to the use of a dialogue since “It is true that inner speech is not very good at capturing non-verbal, pictorial information like colors and shapes ... imagery is probably better suited to deal with that type of data, as opposed to more conceptual material, which would be more easily grasped by inner speech. This limit of inner speech has been coined ‘verbal overshadowing’ and means that people tend to lose or distort information that is inherently difficult to put in words when using language. For example, participants who are asked to view and verbally describe a photograph of a face will show poorer recognition than participants who engaged in unrelated verbal activity” [28].

From a physiological perspective, it is conjectured that of particular importance in the generation and maintenance of self-awareness are the prefrontal lobes (the neurological dimension) and inner speech (the cognitive dimension) [28]. More specifically we find that “New brain imaging techniques have significantly increased our knowledge of the neural correlates of consciousness. Although structures within the reticular formation have been linked to levels of wakefulness for quite some time now, more recent proposals are being put forward concerning the exact nature and location of

neural processes associated with various states of consciousness: 40 Hz oscillations in the cortex, intralaminar nuclei in the thalamus, reciprocal signaling in thalamocortical systems, certain neurochemical levels of activation, and much more ... A recent hypothesis suggests that (visual) consciousness (in primates) would be the result of activity of single neurons or small groups of neurons, i.e., shifting coalitions of neurons ... “ [28]. In fact “That diverse brain areas would participate in consciousness can of course be explained by the fact that different types of consciousness are possible” [28] and moreover we find that “ ... we are dealing here with a multidimensional, very complex form of mental activity made up of many different yet interrelated sub-abilities. Each is probably associated with the activation of specific left and right prefrontal areas. Furthermore, reciprocal connections between the prefrontal lobes and other cortical

and subcortical structures should be taken into consideration ... Obviously, additional studies using more comparable tasks, imaging techniques and participants need to be conducted” [28]. Even if we adopt a biological reductionist point of view, however, we must still be at pains to remember the “self-evident yet important point” [28] that “ ... the prefrontal lobes do not ‘create’ or ‘generate’ self-awareness; instead, they *sustain* it. At the risk of using a potentially problematic analogy, one might say that the ‘hardware’ (prefrontal cortex) is required for self-awareness to take place, but a ‘software’ (more psychological mechanisms, i.e., imagery and inner speech, as well as the content of self-reflection) is also necessary” [28]. The next article in this series explores the importance of these ideas in developing a theory for “Linguisticising the Therapon” [5] – for applying language therapeutically with the aid of hypnosis.

Table 1
The Relation between Self-awareness and Inner Dialogue

Source	Date	Ref	Central idea
Saint-Paul	1927	[30]	Human language affords a “mirror” function through which one intelligence “reacts” with another intelligence, giving rise to self-consciousness.
Wallon	1931	[31]	Self-consciousness is crucially dependent on imagery and metaphor in human language.
Mead	1934	[32]	In early development internal dialogue provides infants with a commentary on their own actions and a sense of existence as independent agents.
Sokolov	1972	[15]	Human consciousness and psychic awareness are crucially and universally dependent on internal dialogue.
Dewitt	1975	[33]	The distinction between self-consciousness and total lack of self-consciousness is enabled by the possession of language.
Brown	1976	[34]	Language extends the primal, indescribable world-self distinction into a conscious, describable self-world separation. with the self as object. Language further enables self-self part differentiation, enabling self-consciousness.

Source	Date	Ref	Central idea
Popper and Eccles	1977	[35]	Language and self-consciousness are fundamentally interrelated in a manner which is not understood.
Dimond	1980	[36]	Inner monologue dominates normal mentation and llinguistic productivity is the mechanism for generation of self.
Berger and Schuch	1981	[37]	Linguistic processes have crucially effected the development of the foundational requirements of self-consciousness by the end of an infant's first year.
Kaufman and Raphael	1984	[38]	Inner dialogue mediates relation with one's self.
Gazzaniga	1985	[39]	Self-awareness as behaviour-explanation is controlled by a verbal cognitive subsystem of the left-hemisphere, called the "interpreter."
Jaynes	1986	[40]	Self-consciousness as self-knowledge depends on an "Analogue-I" which narrates, reminisces, or recalls episodic memories of "who" and "what," through inner speech in a "mind-space."
Gillett	1987	[41]	Full consciousness, and full self-consciousness, are dependent on "propositional attitudes" of language and inner dialogue.
Nurius and Majerus	1988	[42]	Self-talk allows a "rethinking" of the self.
Dennett	1991	[43]	Narration of an inner autobiography gravitates towards a story which is that of the "self."
Miller	1991	[36]	The individual's daily behaviours and experiences give rise to an active emotion-perception gestalt. Inner speech (a "left-hemisphere verbal autoarticulatory capacity") functions to interpret this gestalt, to appraise feedback between inner and outer worlds, and so to motivate further behaviour. The activities allow accumulation of self-knowledge, and construction of self-identity.
Flanagan	1992	[44]	Temporarily prolonged soliloquy is essential for self-consciousness.
Carruthers	1996	[45]	The imagined spoken or heard sentences of inner speech in natural language dominate human "stream of consciousness."
Weiskrantz	1997	[46]	People suffering from self-awareness disorders are unable to "comment" to themselves about these problems through internal speech.

Source	Date	Ref	Central idea
Simonov	1999	[47]	Self-consciousness is produced communicatively through meaningful internal self-dialogue.
Briscoe	2002	[48]	Self-talk through inner speech (rather than language in and of itself) is essential for “higher states of consciousness.”
Morin	2003	[49]	Self-awareness is extended by cognitive processes after initiation by social interactions, which are necessary but insufficient for this. Inner speech is fundamental to self-awareness, and language allows verbal labelling of different self-dimensions and extraction and clarification of abstract self-information.
Morin	2004	[50]	Self-awareness is mainly mediated by the prefrontal lobes and can be modelled on the basis of 3 sources of self-information: the social environment; contacts with objects and structures in the physical environment; bodily awareness through proprioception, and self-reflection using imagery and inner speech.
Morin	2005	[51]	Inner speech is postulated to play a key-role in self-awareness, by internally reproducing and expanding social and physical (ecological) sources of such awareness. It also aids self-observation, and acts as a problem-solving device (where “self” is the problem, and “self-information” the solution); and provides objective labels for otherwise evasive elements of an individual’s inner life.
Schneider et al.	2005	[52] [53]	Dysfunctional self-consciousness mediates a negative relationship between self-talk and self-knowledge; functional self-consciousness suppresses this.
Morin	2006	[54]	Many recent investigations show novel important relationships between language and, for example: time-perception of self and complexity of self-representations; frequency of self-focus; amount of self-related information; accuracy of self-knowledge; and consciousness in relation to mirror self-recognition.
Clowes	2007	[55]	Inner speech is crucial in self-regulation of conscious experience, in attention-control, and in external activity-structuring.

Source	Date	Ref	Central idea
Morin and Michaud	2007	[56]	Substantial evidence supports the view of a relative involvement of inner speech (as measured by left inferior frontal gyms activity) in self-reflective processes. This activity is more prevalent during conceptual tasks (for example, emotions, traits) than during perceptual tasks (for example, agency, self-recognition).
Oatley	2007	[57]	Distinct, reflexive “narrative consciousness” as focus of agency and experience has developed gradually through evolution, acculturation, and individuation. This enhances planning, problem-solving, and emotional processing.
Walla et al.	2007	[58]	Language stimulates differential brain functions involved in processing neurophysiological correlates of self and non-self.
Lee et al.	2007	[59]	Stream-of-consciousness personality traits are universally correlated with language usage.
Zlatev	2008	[60]	Language is meaningful only through connotations arising from self-experience and self-consciousness.
Itkonen	2008	[61]	In linguistic terms, there are 3 distinguishable “acts of consciousness” – observation, introspection and intuition. Intuition, based on intersubjectively binding social norms, is the most fundamental; empathy, is vicarious introspection; and intuition is conventionalised empathy.
Bertau	2008	[62]	The internalised “voices” of meaningful, embodied dialogic partners, enables the emergence of complex inner experiences, and of self- and other-consciousness.
Hatzigeorgiadis et al.	2009	[63]	Self-talk increases self-confidence, reduces cognitive anxiety, and enhances sports performance.
Brinthaup et al.	2009	[64]	Self-talk is important in day-to-day behaviour and self-regulation, in facilitating social assessment, self-criticism, self-reinforcement, and self-management.

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