

# Consciousness

agery, and self-statement. The expression *private speech* designates self-talk emitted out loud by adults when alone, whereas *egocentric speech* refers to young children's outer speech produced in social situations without preoccupation of being understood by others. It is assumed that inner speech is universal, but important individual differences exist in terms of its frequency, content, and sophistication. People talk to themselves more or less often, use varied proportions of positive and negative self-statements, and articulate more or less complex sentences with important discrepancies in vocabulary richness.

The origin of inner speech is social in nature: it represents the gradual internalization of adults' speech that comes to be self-directed. Inner speech differs from social speech in that it is abbreviated and predicative (i.e. the context of speech is implicit to the talking agent). Philosophers such as Plato, Porphyre, and Ryle have examined the phenomenon of inner speech and its relation to thought. The Wurzburg school's view (late 1800s) was that pure thought can exist without language, and thus inner speech; the behaviourist's view instead emphasized that thought should be equated with silent speech. Darwin, in *The Descent of Man* (1871: Ch. 3), clearly embraced the later when he wrote that 'A long and complex train of thought can not be carried on without the aid of words, whether spoken or silent, than a long calculation without the use of figures or algebra.' Blachowicz (1999) has recently contrasted two conceptions of inner speech. According to the dialogical/social view there are two distinct internal cognitive interests in internal *dialogue*, the articulating and listening 'partners', each alternatively changing role as one corrects proposals made by the other. The foundationalist/reflection view rather proposes that the conversational duality of inner speech is more apparent than real. It is only the reflecting self that does the talking; inner speech is *monologue*, not *dialogue*.

The scientific study of inner speech is relatively recent. The most popular tool is questionnaires consisting of self-statements along various possible dimensions—e.g. anxious vs non-anxious, positive vs negative, functional vs dysfunctional; participants indicate their frequency of self-talk use on a Likert scale. Spontaneous outward manifestations of inner speech (egocentric speech in children and private speech in adults) can be recorded while participants engage in some activity or problem-solving task; verbalizations are coded and classified into different categories that are then correlated with behaviour or performance. A variation of this technique is the '*think out loud*' method, where adult participants are explicitly instructed to vocalize their thoughts. In the videotape reconstruction procedure, subjects are shown video recordings of their behaviour

**inner speech.** 'I must not forget to buy bread on my way home tonight'; 'I look great in these jeans'; 'What's John's phone number again?' These are simple examples of inner speech, the activity of talking to oneself in silence. Related terms can be found in the literature: self-talk, subvocal/covert speech, \*working memory, verbal rehearsal, internal dialogue/monologue, subvocalization, utterance, self-verbalization, auditory im-

in specific situations and are asked to report ('reconstruct') inner speech activity. The *thought listing method* consists in asking participants to catalogue their verbal mental activity after completion of a task, whereas the thought sampling technique aims to obtain a representative sample of people's inner speech in natural settings (see \*descriptive experience sampling). Electromyographic recordings of movements of the tongue have also been employed to assess inner speech frequency during problem-solving activities.

These assessment techniques have assisted researchers in identifying the main functions of inner speech. Verbal self-guidance (i.e. self-regulation) has been extensively studied by Vygotsky (1934/1962) and Luria (1978). Their work indicates that children first learn to respond to adult verbal commands to orient and control their behaviour, and that this regulatory function of language gradually gets internalized and becomes increasingly self-generated. Self-regulation includes setting immediate and distant goals, planning, problem-solving, and decision-making. Tasks that require the elaboration of complex behavioural sequences and the simultaneous appreciation of multiple behavioural options are usually better performed with the aid of self-talk. Research conducted by Kendall and Hollon (1981) identifies four effective categories of problem-solving self-verbalizations: (1) a precise definition of the problem; (2) an effective approach to the problem; (3) a sustained focus on the problem; (4) a progress evaluation that includes praise or strategy readjustment. A vast array of studies have examined the use of inner speech in athletes for instructional (skill and strategy) or motivational (arousal, mastery, and drive) purposes in competitive and practice settings. Inner speech has also been shown to play a key-role in mnemonic functions, especially in rehearsal of material in short-term \*working memory.

Despite the overall adaptive quality of self-directed talk, distorted use of inner speech may lead to—or maintain—psychological disorders. Research suggests that conditions such as bulimia and anorexia, insomnia, social anxiety, agoraphobia, compulsive gambling, male sexual dysfunction, and depression involve maladaptive self-talk. More benign transitory negative states such as worry, guilt, and shame are most likely mediated by inner speech. The intriguing phenomenon of auditory verbal \*hallucinations in \*schizophrenic patients is now explained in terms of deficient monitoring of their own self-generated subvocal activity (see McGuire et al. 1996). A lack of inner speech in hyperactive children can partially account for inadequate self-control, and behavioural cognitive therapy developed by Meichenbaum (1977) teaches agitated children to talk to themselves in order to effectively engage in verbal self-

guidance. Therapy involves five gradual steps leading to the internalization of self-regulatory speech: (1) modelling, (2) overt external guidance, (3) overt self-guidance, (4) faded overt self-guidance, and (5) covert self-guidance.

Research on inner speech does not limit itself to its functions. A representative example in developmental psychology is the study of the gradual transformation of egocentric/private speech into inner speech in children. Work conducted by Kohlberg et al. (1968) shows that external speech for self has a curvilinear course of development inflecting at ages 6–7 and disappearing at age 10. Other studies have determined that children become aware of engaging in private speech at around age 4. Vygotsky (1934/1962) originally postulated that once self-talk has been fully internalized as inner speech, it does not resurface as external speech for self. However, work by Duncan and Cheyne (1999) demonstrates that healthy adults do use private speech when alone for self-regulatory purposes, as well as for spatial navigation/search, concentration, and affective discharge/control. Current non-developmental research focuses on measurement issues, inner speech in bilinguals, and neuroanatomy. One precise brain area has been shown to be more active during inner speech production: the left inferior frontal gyrus.

Inner speech is related to \*consciousness in at least two ways. First, self-talk can be conceived of as a running verbal commentary on one's current subjective experience—what one is presently perceiving, thinking about, doing, feeling, and so forth. Seen as such, inner speech represents an inherent part of being conscious. Second, some past and current theories of consciousness and self-awareness explicitly implicate inner speech. Mead's thesis (1912/1964) suggests that egocentric speech in early childhood makes young speakers aware of their actions and separate existence. Dennett (1991) sees the self as a centre of narrative gravity—a verbal autobiography—and Carruthers (2002) proposes that one becomes aware of a mental state when one verbally generates a higher-order thought about that state. Burns and Engdahl (1998) add that through the process of labelling, categorizing, and engaging in language-based modes of representation, one not only represents internal states and experiences—one reflects on them. And Steels (2003) notes that inner speech leads to the construction of a self-model (see \*bicameral mind). Morin (2005) further indicates that self-talk can reproduce social mechanisms leading to self-awareness—i.e. with inner speech one can engage in verbal conversations with oneself and replicate comments emitted by others or internalize others' perspective. Inner speech can also create a psychological distance between the self and mental events it experiences, thus

facilitating self-observation. It can act as a problem-solving mechanism where the self represents the problem and self-information the solution, and can label aspects of one's inner life that would otherwise be difficult to objectively capture.

Perhaps it is no accident that most Eastern religions encourage followers to 'quiet' the self by inhibiting self-talk through \*meditation. The self engaged in subjective experience can better perceive the various elements that constitute this experience by verbally identifying them; the same self can also become more explicitly cognizant that it is the subject of this experience by stepping back and saying 'I'm the one going through this'.

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