



The varieties of inner speech: Links between quality of inner speech and psychopathological variables in a sample of young adults

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ARTICLE INFO

Article history:

Received 14 January 2011

Available online 30 August 2011

Keywords:

Anxiety

Auditory hallucination

Cognitive behavioral therapy

Depression

Dialogic

Inner speech

Rumination

Vygotsky

ABSTRACT

A resurgence of interest in inner speech as a core feature of human experience has not yet coincided with methodological progress in the empirical study of the phenomenon. The present article reports the development and psychometric validation of a novel instrument, the Varieties of Inner Speech Questionnaire (VISQ), designed to assess the phenomenological properties of inner speech along dimensions of dialogicality, condensed/expanded quality, evaluative/motivational nature, and the extent to which inner speech incorporates other people's voices. In response to findings that some forms of psychopathology may relate to inner speech, anxiety, depression, and proneness to auditory and visual hallucinations were also assessed. Anxiety, but not depression, was found to be uniquely positively related to both evaluative/motivational inner speech and the presence of other voices in inner speech. Only dialogic inner speech predicted auditory hallucination-proneness, with no inner speech variables predicting levels of visual hallucinations/disturbances. Directions for future research are discussed.

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1. Introduction and Method

When asked by Theaetetus to define thought, Socrates replied, “As the talk which the soul has with itself. . . the soul. . . when it thinks, is merely conversing with itself, asking itself questions and answering” (Plato, 1987, 189e). Despite an entrenched skepticism about the possibility of a scientific study of such experiences (Hurlburt & Schwitzgebel, 2008), recent years have seen a re-emergence of interest in inner speech, including its phenomenology, meaning, use, and development (e.g., Wiley, 2006). The importance of understanding inner speech is brought into focus by theoretical perspectives which see it as having a key role to play in cognition and behavior (Fernyhough, *in press*).

One limitation of existing empirical studies of inner speech is the widespread assumption that inner speech is comparable in form and structure to overt speech. For example, inner speech in neuroimaging studies is typically conceived of as the “subjective phenomenon of talking to oneself, of developing an auditory–articulatory image of speech without uttering a sound” (Levine, Calvanio, & Popovics, 1982, p. 391). In such studies inner speech is often elicited by asking participants to repeat words or sentences silently to themselves in the scanner (e.g., Shergill, Bullmore, Simmons, Murray, & McGuire, 2000). From other theoretical perspectives, however, it is considered that inner speech has a number of properties that distinguish it from external speech (Jones & Fernyhough, 2007a).

Firstly, inner speech has been proposed to have a *dialogic* quality. Vygotsky (1987) argued that inner speech was irreducibly social in origin, being formed when external dialogs between children and their caregivers gradually became internalized over the course of development. For example, a puzzle-solving process involving mother and child will involve

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an external dialog between them, with the mother typically asking the child questions and the child answering (Fernyhough, 2009). The gradual internalization of these social exchanges (Wertsch, 1980) guarantees that inner speech has an inherently dialogic nature, in the sense of an ongoing interplay between different internalized perspectives (Fernyhough, 1996; Fernyhough, 2008).

Secondly, inner speech frequently has a *condensed* nature. The internalization of external dialog to form inner speech has been proposed to be accompanied by processes of syntactic and semantic abbreviation (Vygotsky, 1987). This has led to the proposal that inner speech takes at least two forms, *condensed* and *expanded* (Fernyhough, 2004), a view which is backed up by findings from the study of children's private speech (Fernyhough, 2009) and by the evidence from introspection (Martínez-Manrique & Vicente, 2010).

Our third area of interest is the extent to which inner speech features the presence of *other people*. If the Vygotskian view is correct, internal dialogs should feature different voices in interaction. Indeed, Fernyhough (1996) has argued that this view of the development of verbal thinking entails that our inner speech will be shot through with other voices. Studies of the quality of inner speech would therefore benefit from attending to the question of whether the voices of other people feature in typical inner speech.

A final key aspect of inner speech is its use for *evaluating* situations, people, and the self. Self-evaluation has been proposed to be mediated by inner speech and to play a key role in self-awareness (Morin, 1993). The use of evaluative inner speech may also be linked to the tendency to take the position of a detached other on our own experiences (Vocate, 1994), and may be expected to relate to the presence of the voices of other people in inner speech. Evaluative inner speech is also thought to have an important motivational function (Hardy, Hall, & Hardy, 2005).

To date, a rich Vygotskian conception of inner speech has not been used to inform the development of an inner speech questionnaire. For example, the Self-Verbalization Questionnaire (SVQ; Duncan & Cheyne, 1999) assesses the cognitive and self-regulatory functions of private speech (audible speech intended for the self, not others), yet is not designed to assess inner speech or qualitative aspects of private speech such as dialogicality and condensation. One questionnaire which does indirectly assess condensed inner speech is the Self-Talk Use Questionnaire (STUQ; Hardy, Hall, & Hardy, 2004). This asks participants whether their self-talk (which may be overt or covert) takes the form of single words, phrases, or complete sentences. Hardy, Hall, and Hardy (2005) administration of the STUQ to athletes supported the idea of a condensed/expanded inner speech distinction. Twenty-three percent of athletes' self-talk involved single words, 59% involved phrases, and only 18% was in the form of full sentences. Although 65% of athletes' self-talk was covert, no sub-analyses specifically examined the condensed nature of inner (covert) speech. Questionnaires which focus specifically on inner speech, such as the Self-Talk Scale (STS; Burnett, 1996), have provided information relevant to the evaluative nature of inner speech, but mainly through asking whether the predominant affective tone is positive or negative. Thus, at present no inner speech questionnaire addresses the full range of qualitative and functional aspects of inner speech that flow from Vygotsky's theory.

One reason for developing such a questionnaire lies in its potential use for exploring inner speech's relation to psychopathology. For example, anxiety and depression are known to be associated with ruminative thought processes (e.g., Harrington & Blakenship, 2002; Nolen-Hoeksema, 2000), with rumination being a predominantly verbal process (Nolen-Hoeksema, 2004). Establishing whether specific qualities of inner speech relate to levels of such states may help guide the further development of therapeutic interventions for these disorders, such as cognitive behavioral therapy. A second example of a relation between inner speech and potentially distressing mental experiences can be found in the example of auditory verbal hallucinations (AVHs, or 'hearing voices'). Inner speech models of AVHs propose that the raw material of such experiences is the voice-hearer's own inner speech (e.g., Jones & Fernyhough, 2007b) which is misattributed to an external source. Yet no studies to date have considered the relation between AVHs and qualitative aspects of inner speech in non-clinical populations. This question is particularly relevant given a growing appreciation that AVHs can form part of typical human experience (e.g., Johns & van Os, 2001). We were concerned to establish whether any relation between our inner speech variables and AVHs was specific to the auditory modality, and not to hallucinations in general (in visual hallucinations, for example, one would expect no relation to inner speech). To achieve this end, we aimed to control for levels of proneness to visual hallucinations.

2. Method

2.1. Participants

Two hundred and thirty-five students (77 men) at a UK university with a mean (SD, range) age of 20.38 (2.90, 18–30) took part in the first stage of the study. Participants were recruited via e-mail invitation. There was no financial incentive to participate and all answers were given anonymously, with the participants only indicating their age and gender. A second separate sample of 220 students (47 men) with a mean (SD, range) age of 22.95 (3.52, 18–30) took part in the second stage of the study. These participants indicated their age and gender, and if they wished to take part in a follow-up study (where test-retest reliability was to be assessed; see below) they entered their email address. Ethical approval was obtained from the relevant university ethics committee. On-line questionnaires have been shown to be a reliable method of data collection for psychopathological variables (Jones, Fernyhough, de-Wit, & Meins, 2008).

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