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Self-reported frequency, content, and functions of inner speech

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Abstract

This study obtained information about the frequency, content, and functions of inner speech by asking 380 participants what they typically say to themselves using an open-format thought-listing procedure. Participants mostly reported talking to themselves about themselves—i.e., evaluating the self, emotions, physical appearance, and relationships. Self-reported inner speech was also about individuals close to the self (family, friends, and intimate partner) and one's immediate physical environment. Participants listed inner speech about school, work, sports, and leisure activities. The inner speech functions of self-regulation and mnemonic aid were often mentioned. This represents the first study to explicitly examine self-reported inner speech frequency, content, and functions in adult participants.

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Keywords: inner speech; self-talk; self-regulation; self-awareness; thought listing;

1. Introduction

Despite decades of empirical work on normal inner speech (e.g., Sokolov, 1972) and private speech in children (e.g., Winsler, 2009), as well as disturbed subvocal speech in brain-damaged patients (Levine, Calvanio, & Popovics, 1982), little is known about naturally occurring self-talk as reported by people themselves. Spontaneously occurring thoughts in healthy individuals have been investigated using numerous variations of the thought sampling method (see Klinger & Cox, 1987-88; Goldstein & Kenen, 1988). Typical thought themes found in these studies are work, time, chores, leisure, self, people, conversations, errands, relationships, TV and radio, and food. Health-related issues are also often reported—i.e., smoking, drinking, working, interpersonal relations, reducing weight, and studying. Heavey and Hurlburt (2008) examined the base rates of common inner experience phenomena using a Descriptive Experience Sampling (DES) method. This method relies on a beeper that randomly cues participants to report whatever mental events they are experiencing at the moment of the probe. Their sample of college students reported five basic types of inner experiences each occurring approximately 20% of the time: inner speech, mental imagery, unsymbolized thinking, feelings, and sensory awareness. This past body of work investigated various forms of mental activity such as inner experiences, daydreaming, thoughts, feelings, and sensations. Inner speech may or may not be present during any of these mental events, which clearly indicates that those studies did not directly measure inner speech occurrence.

In this study we used an open-format thought listing method to assess inner speech in a sample of undergraduate

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university students. Participants were invited to list what they typically say to themselves when using inner speech. Below we describe the results of content analyses performed on the data, highlighting the frequency, content, and functions of inner speech in our sample.

2. Methods

2.1. Participants

Three hundred eighty undergraduate student volunteers (83% women) participated in this study. They were between 17 and 55 years of age (M = 21.3 years) and 89% declared English as their first language. All participants received course credit for their participation.

2.2. Materials and procedure

Self-reported inner speech use was assessed with an open-format thought-listing procedure, which consists of asking participants to list as many verbalizations as they typically address to themselves. This method is not reactive and exhibits good criterion-related, concurrent, and discriminant validity. However, participants may be unwilling to report their thoughts accurately, and because of its retrospective and reconstructive nature, the thought-listing method may cause mnemonic biases (Cacioppo, von Hippel & Ernst, 1997).

Testing took place in small groups of approximately eight individuals. The experimenter first explained the goal of the study and invited participants to read and sign a consent form. Participants were then asked to complete the open-ended thought-listing measure together with various other questionnaires used in another study.

A previously developed coding scheme was used to classify and quantify inner speech data into specific content and function units. The thematic categories shown in all figures below guided content analysis. The coding reliability was established by having a second coder code a randomly selected subset of 100 reports.

3. Results

3.1. Inner speech about self and others

Figure 1, panel A, shows the proportion of participants who talk to themselves about the self, others, and unspecified people (either self or others). Participants mostly reported talking to themselves *about themselves.* In decreasing order, the most frequently mentioned units were self-evaluation, emotions, physical appearance, relationships, problems, food, behavior, financial situation, stress, performance, future, education, beliefs, others' opinion of self, hypothetical situations, current self, goals, and desires.

3.2. Inner speech functions

Figure 1, panel B, shows the proportion of participants who use inner speech for various functions. In decreasing order, participants reported talking to themselves to plan tasks, remember, self-motivate, solve problems, plan when to do specific tasks, think, rehearse upcoming conversations, read, write or calculate, study, control emotions, determine what to wear, self-censor, replay past conversations, and daydream.

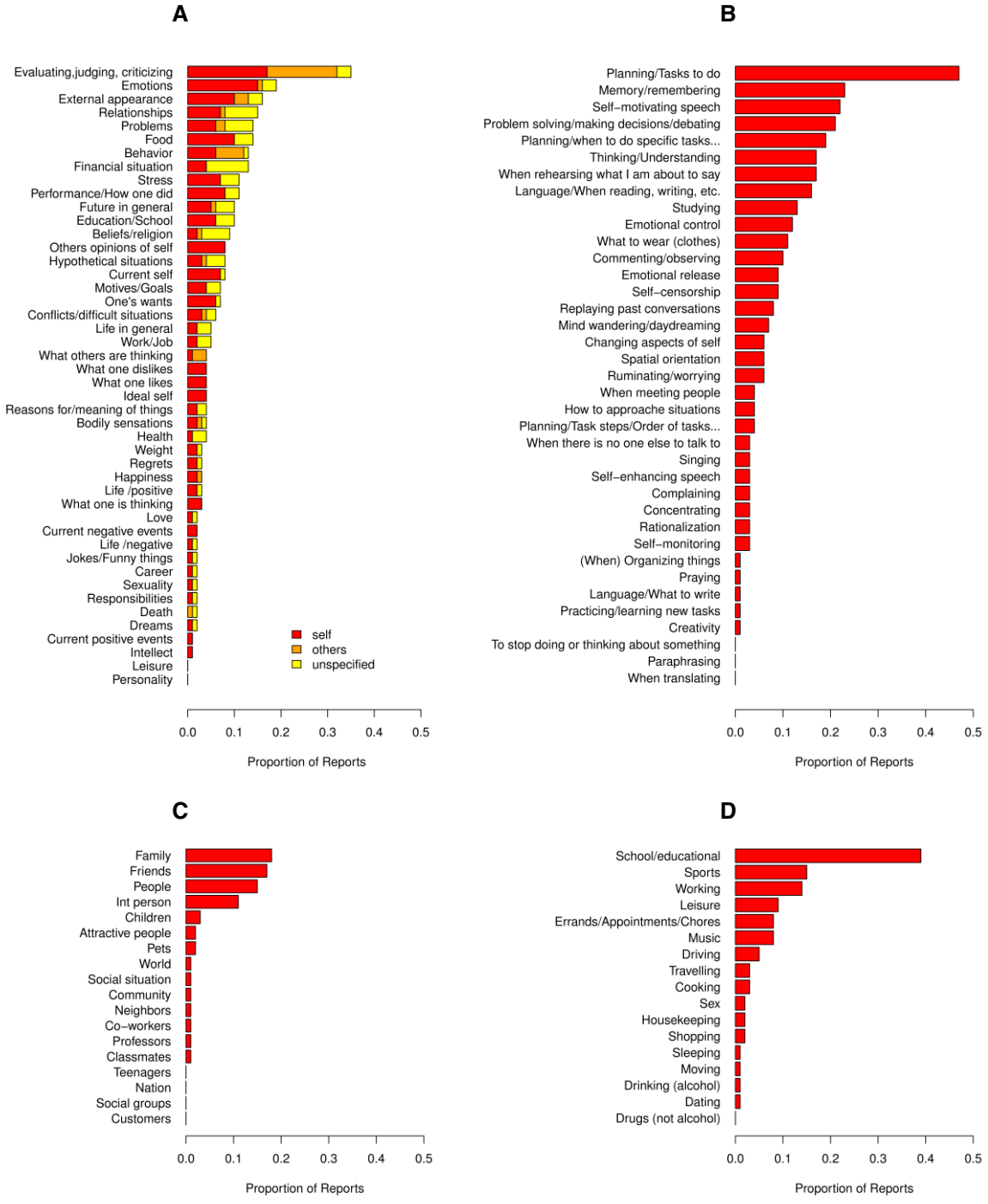

Fig. 1. Proportions of participants who talk to themselves about various aspects of self, others, and unspecified persons (either self or others; Panel A); functions (Panel B), people (Panel C), and activities (Panel D).

3.3. Inner speech about people

Figure 1, panel C, depicts the proportion of participants who talk to themselves about other people—e.g., about participants' social environment. In decreasing importance, participants mostly reported engaging in inner speech about people in general, family, friends, and their intimate partner.

3.4. Inner speech about activities

Figure 1, panel D, shows the proportion of participants who talked to themselves about various activities. Participants often indicated talking to themselves about school and educational activities, sports activities, work, leisure activities, chores, music, and driving.

3.5. Inner speech about the physical environment

Figure 2, panel A, shows the proportion of participants who talked to themselves about the physical environment. The participants talked to themselves mostly about their immediate environment.

3.6. Inner speech about events

Figure 2, panel B, shows the proportion of participants who talked to themselves about various events. Participants reported talking to themselves primarily about general daily events, future events, and past events.

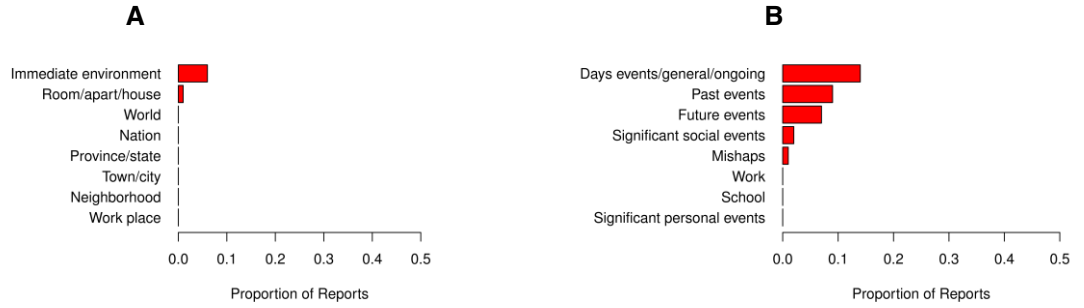

Fig. 2. Proportions of participants who talked to themselves about various aspects of the physical environment (Panel A) and events (Panel B).

4. Discussion and conclusion

Participants in our sample mostly reported talking to themselves about themselves. This observation is consistent with the postulated role played by inner speech in self-referential activity (e.g., Morin, 2005). They also reported frequently engaging in self-talk about future events. Our results fit with those obtained by D'Argembeau et al. (2009) in suggesting that at least some prospective thinking recruits inner speech. Self-reported inner speech about people focused more on individuals that are close to oneself—family, friends, intimate partner— which suggests that people are more interested in (and may talk to themselves more often about) any topics directly relevant to themselves. Participants indicated frequently talking to themselves about school and education, work, sports, and leisure activities. These represent typical activities most undergraduate students regularly engage in. The most often self-reported inner speech function was self-regulation, which includes planning to engage in specific tasks, self-motivating speech, time management, and planning when to do things. Also frequently mentioned was self-talk used to solve problems and make decisions, as well as inner speech used as a mnemonic aid. Vygotsky (1943/1962)

particularly stressed the importance of the self-regulatory function of inner speech. All other functions mentioned above are precisely those that have been the most extensively investigated (e.g., Morin, in press).

The thought-listing procedure used in this study is retrospective and may produce inaccurate or incomplete data; in addition, it remains possible that non-inner speech occurrences were inconspicuously listed. Using a thought sampling procedure, as exemplified by the Descriptive Experience Sampling (Heavey & Hulrburt, 2008) and the Experience Sampling Method (Csikszentmihalyi & Figurski, 1982) will represent a fruitful strategy to obtain more ecologically valid samples of naturally occurring inner speech from which more realistic frequency, content, and functions will emerge.

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