

The Self-Talk Scale: Development, Factor Analysis, and Validation

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Researchers and theorists have argued that self-talk plays an important role in everyday behavior and self-regulation. To facilitate research on this role, we developed a new measure of self-talk for use with nonclinical adult populations. The Self-Talk Scale (STS) measures one's frequency of self-talk. Analysis indicated a factor structure consisting of Social Assessment, Self-Criticism, Self-Reinforcement, and Self-Management factors. In 5 studies, we demonstrated that the STS shows acceptable test-retest reliability and preliminary construct validity. We present implications for the use of the STS.

The experience of "talking to oneself," or carrying on an internal conversation with oneself, has intrigued philosophers and psychologists for decades (e.g., Fields, 2002; Jaynes, 1976; Lyons, 1986; Mead, 1934/1962). There are many terms that refer to the subjective experience of talking to oneself, including *inner monologue* or *dialogue*, *auditory imagery*, *private speech*, *inner speech*, *self-talk*, and *self-statements*. Among these various terms, most theorists and researchers refer to talking to oneself aloud as "private speech" and talking to oneself silently as "inner (or internal) speech." We prefer to use the simpler and more general term *self-talk* to refer to both private and inner speech.

One issue surrounding this psychological process is whether it is an unimportant epiphenomenon that merely reflects cognition or consciousness (Fields, 2002) or whether it plays an important role in social- and self-regulation. Psychological theory and research (e.g., Diaz & Berk, 1992; Hardy, 2006; MacKay, 1992) has suggested that talking to oneself does in fact serve important cognitive and regulatory functions. Surprisingly, despite these views, researchers in personality and social psychology have devoted very little attention to measuring self-talk. There is not a satisfactory measure of individual differences in self-talk frequency that encompasses the variety of behavioral and self-regulatory functions served by self-talk. In this article, we describe the development, factor structure, reliability, and preliminary validity of such a measure.

Most research on inner and private speech in adulthood considers facilitative and debilitating self-talk in sports or exercise domains (Hardy, 2006) or self-talk gone awry, focusing on negative self-statements from the perspective of clinical issues such as depression or anxiety (e.g., Kendall & Hollon, 1989; Schwartz & Garamoni, 1989). Thus the emphasis is usually on the affective content of a person's inner speech. For example, Schwartz and Garamoni (1989) proposed that different types of psychopathologies can be associated with different "states of mind" in terms of the ratio of positive to negative self-statement content.

For some time, psychological theorists and researchers (e.g., Bandura, 1986; Baumeister & Heatherton, 1996; Carver & Scheier, 1998; Mischel, Cantor, & Feldman, 1996) have been

very interested in the process of self-regulation. One of the important components of the self-regulation process is the tendency to talk to oneself (e.g., Berk, 1992; Morin, 1993; Vygotsky, 1987). They noted that self-instructions play a critical role in the self-control process. Mischel et al. noted that self-talk is important for inhibiting impulses, guiding one's courses of actions, and monitoring one's goal progress. Similarly, Carver and Scheier (1998) viewed self-talk as a reflection of a "meta-monitoring" of one's behaviors and how well one is progressing toward one's goals. As such, Carver and Scheier argued that it influences emotional reactions and responses to behavioral deficits.

Narrative psychologists (e.g., Bruner, 1990; Dennett, 1992) have proposed that the self is a product of self-narration or self-talk, and psychotherapy researchers have frequently incorporated self-talk into their models. For example, Honos-Webb and Stiles (1998) focused on the role of self-narratives in the assimilation of difficult experiences. Similarly, in Hermans's (1999) approach, an inner dialogue takes place as the "I" jumps back and forth between different "I positions." Finally, Benjamin's (1994) structural analysis of social behavior approach incorporates patterns of state-specific self-talk such as while a person is failing or succeeding.

MEASURES OF SELF-TALK

A central issue pertaining to the study of self-talk is how best to assess it. Clinical and counseling psychologists have long been interested in the affective content and irrational aspects of self-talk (e.g., Beck, 1976; Ellis, 1962). Typically, the favored measures of self-talk assess respondents' frequency of making specific kinds of self-statements. As noted earlier, these measures almost uniformly deal with dysfunctional self-talk such as the frequency of having negative self-related thoughts (Kendall, Howard, & Hays, 1989) or hostile automatic thoughts (Snyder, Crowson, Houston, Kurylo, & Poirier, 1997). It is understandable why clinicians take this approach to self-talk. Bringing about successful cognitive therapeutic interventions requires the measurement of valid samples of actual thought content (Glass & Arnkoff, 1994). Clearly the frequency of more general self-regulatory self-talk has been a neglected aspect of theory and research. The need for a measure of individual differences in self-talk frequency guided the development of our scale.

A few measures focus on the general tendency to talk to oneself. Siegrist (1995) published an 18-item scale of self-talk

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designed to reflect specific situations in which people talk to themselves about themselves (e.g., “I talk over with myself personal problems”). This scale appears to measure primarily dysfunctional aspects of self-talk, and its psychometric properties have not been demonstrated. Duncan and Cheyne (1999) created a 27-item measure of overt self-verbalizations that includes situations such as trying to remember a phone number or finding a misplaced item. However, Duncan and Cheyne’s measure focuses primarily on cognitive, mnemonic, and attentional situations when people think or talk to themselves aloud rather than occurrences of covert self-talk and other possible affective and behavioral self-regulatory functions.

The Self-Talk Scale (STS) differs from existing measures in several ways. First, it focuses on inner speech as well as private speech. Research suggests that the overall self-reported frequency of private speech is much lower than the frequency of inner speech (Brinthaup, Boling, & Wilson, 2000). Given the social inhibitions that likely apply to talking out loud to oneself, assessing inner speech is also important. Second, the emphasis of the STS was not on the frequency of what one is saying to oneself (e.g., the positive or negative content) but rather the frequency of when and why one might talk to oneself. For example, the Automatic Thoughts Questionnaire (Kendall et al., 1989) assesses specific negative or positive thoughts that pop into a person’s mind automatically (e.g., “I’m worthless”). It does not assess the ways that people might use self-talk to regulate their emotions, thoughts, and behaviors.

Previous measures of self-talk have identified some specific functions that self-talk might serve. However, an exploration of possible self-talk functions is warranted. For example, do people use self-talk to reward or punish themselves, motivate themselves to work toward goals, manage their thoughts and emotions, regulate their social interactions, and so on? Finally, there is a need for a self-talk measure that explicitly captures the self-regulatory aspects of the phenomenon. There is good reason to think that general self-talk frequency is a multidimensional, self-regulatory construct. Although it is important to measure the actual thought content or behavioral instances associated with self-talk, failing to assess the different functions it might serve neglects some of the most important self-regulatory aspects of the phenomenon.

In summary, the goal of the STS was to provide a general measure of individual differences in adult inner and private speech that is applicable to a broad range of behaviors and situations. We designed the measure to be used with adult populations in both research and applied (e.g., therapeutic, educational, or training) settings. A major assumption of the underlying model was that people differ in the general frequency of and specific self-regulatory functions served by their self-talk.

METHOD

Overview of Procedures and Participants

There were several steps to the development and preliminary validation of the STS. In this section, we describe seven studies that comprised these steps. First, we generated and reduced an original item pool pertaining to the content domains of self-talk. Next, we determined the factor structure of the resulting scale, using exploratory and confirmatory factor analysis. Finally, we conducted several studies of the reliability, preliminary validity, and additional refinement of the measure.

All participants in the studies were students from undergraduate psychology classes at a large southeastern U.S. public university who volunteered for research credit as part of their class grade. This institution has an undergraduate student body of over 19,000, comprised of 83% full-time students. The student body is 52% female and 48% male, with 81% White, 13% African American, and 6% other (e.g., Asian, Hispanic, American Indian) and an average age of 23.74 years.

Most of the participants came from General Psychology classes, typically showed higher percentages of women than men than the overall student body, and were primarily freshmen and sophomores. We recruited them through a departmental research pool and tested them in groups ranging from 15 to 30 per session. Unless otherwise indicated, these data collection procedures were similar for all studies. The samples used in Studies 3 through 7 were independent from each other as well as from the samples used in the scale development procedures (Studies 1 and 2).

Study 1: Generation and Reduction of Original Item Pool

We began with a pool of 90 statements pertaining to the possible cognitive, affective, and behavioral self-regulatory aspects of self-talk. These items were generated using content or items from existing measures that focused on self-talk functions, a review of research on the developmental aspects of private and inner speech, and an analysis of theoretical and research constructs associated with the adult self-regulation process. The generated pool included self-regulatory items pertaining to the complexity (depth, elaboration, and frequency), awareness, affective content, and specific purpose domains of self-talk. Three experts in the content area (all of whom had previously published research on self-talk) reviewed and rated these items in terms of their relevance (1 = *low*, 2 = *moderate*, and 3 = *high*) to the identified content domains. We chose statements with high relevance ratings, which resulted in a smaller pool of 54 items.

Participants were 267 (181 female, 77 male, 9 missing information) students. They rated each item using a 5-point scale with 1 = *never*, 2 = *hardly ever*, 3 = *sometimes*, 4 = *fairly often*, and 5 = *very often*. Scale instructions asked respondents to indicate times when they might talk to themselves either silently or out loud (see Appendix for the complete instructions).

A principal components analysis we performed on these data revealed one main factor and several smaller factors. The 22 items with the highest loading on the main factor were used to construct the initial version of the scale, which showed high internal consistency ($r = .93$). Analysis of the development sample indicated that the scale demonstrated wide variation across individuals and was normally distributed, similar to other research on and measures of private speech (e.g., Berk, 1992; Duncan & Cheyne, 1999).

Study 2: Determining the Factor Structure of the STS

We tested several models to determine the factor structure of the STS. First, we tested a one-factor model to determine whether the STS represented a general self-talk factor. Then we tested a four-factor structure through exploratory factor analysis, and it was cross-validated on the hold out sample. Analysis of the four-factor solution revealed the potential for a higher order factor structure due to high interfactor correlations. We next tested a higher order model using the self-talk factor as the

higher order factor and the four individual self-talk factors as the primary factors.

Participants. We combined several data collection sessions to form the final data set for the factor analysis procedures. None of the data used during the construction and validation of the 22-item scale (Study 1) was included in the data set used for this factor analytic procedure. At the beginning of several semesters, students participated in a pretesting session, during which they provided demographic data and completed several measures including the STS. The combined data collections resulted in a final sample of 767 participants (459 female, 294 male, 14 missing information).

Initial model. We randomly divided the original data set ($N = 767$) into two subsample data sets. We used Sample 1 ($n = 386$) to build the model, whereas we used Sample 2 ($n = 381$) to test and validate the model. We first tested a one-factor solution in AMOS (Version 6.0, Chicago: SPSS) software to determine whether the STS consisted of only one component of self-talk. The initial model found a poor fit, $\chi^2(209, N = 253) = 1222.529$; goodness-of-fit index (GFI) = .736, comparative fit index (CFI) = .744, root mean residual (RMR) = .089, and root mean square error of approximation (RMSEA) = .112 (95% confidence interval [CI_{.95}] = .106–.118). Even after 10 modification adjustments allowed correlated errors among items, the solution found a weak fit, with $\chi^2(199, N = 253) = 710.820$, GFI = .842, CFI = .871, RMR = .072, and RMSEA = .082 (CI_{.95} = .075–.088). We did not perform cross-validation for the one-factor model due to poor model-data fit.

Exploratory factor analysis. Because a one-factor structure did not fit, we tested for multiple factors on Sample 1 using principal axis extraction and promax rotation. We compared the actual eigenvalues from the data to a set of randomly generated eigenvalues at the 95th percentile derived from a parallel analysis using SPSS (Version 15; SPSS Inc., Chicago, IL) and syntax developed by O’Conner (2000). In this comparison, we found that four factors exceeded the 95th percentile of the randomly generated factors. Examination of the proportion of shared variance accounted for found that the fourth factor accounted for 5% of the shared variance, whereas a fifth factor only accounted for an additional 3% of the variance. In an examination of the four-factor solution, we found that each factor exhibited three or more items with salient loadings (Gorsuch, 1997). This solution was stable under maximum likelihood extraction. Results of the principal axis analysis are presented in Table 1. The four factors obtained using the principal axis solution with a promax rotation accounted for 59.39% of the variance. We named the four factors Social Assessment, Self-Reinforcement, Self-Criticism, and Self-Management.

Items with the highest loading on the Social-Assessment factor included wanting to replay something said to another person and imagining how other people respond to things one said. Items with the highest loading on the Self-Reinforcement factor included feeling proud of something done and when something good has happened. Items with the highest loading on the Self-Criticism factor included feeling discouraged about oneself and criticizing oneself for something said or done. Finally, items with the highest loading on the Self-Management factor included giving oneself instructions or directions about what one

TABLE 1.—Exploratory factor analysis of the Self-Talk Scale: Four-factor structure using principal axis analysis.

| Item | Factor | | | |
|---|-------------------|--------------------|----------------|-----------------|
| | Social Assessment | Self-Reinforcement | Self-Criticism | Self-Management |
| 1. I want to replay something that I’ve said to another person. | .897 | -.018 | -.127 | .013 |
| 2. I’m imagining how other people respond to things I’ve said. | .689 | -.079 | .248 | -.191 |
| 3. I try to anticipate what someone will say and how I’ll respond to him or her. | .573 | -.063 | .178 | .069 |
| 4. I want to imagine what other people might say or think about me. | .572 | .122 | .047 | .004 |
| 5. I want to review things that have happened in the recent past. | .566 | .110 | .039 | .057 |
| 6. I review things I’ve already said to others. | .468 | .063 | -.148 | .272 |
| 7. I wish that I could change things I’ve said to others into “better” or different things. | .380 | -.080 | .264 | .165 |
| 8. I want to analyze something that has recently happened to me. | .369 | .152 | .115 | .161 |
| 9. I’m proud of something I’ve done. | .091 | .940 | -.036 | -.218 |
| 10. I want to support or congratulate myself for something I said or did. | -.007 | .778 | -.180 | .129 |
| 11. Something good has happened to me. | .126 | .741 | -.077 | -.059 |
| 12. I want to give myself courage to do something. | -.128 | .522 | .223 | .160 |
| 13. I need to boost my confidence that I can do something difficult. | -.196 | .444 | .423 | .042 |
| 14. I feel discouraged about myself. | .048 | -.108 | .860 | -.111 |
| 15. I’m criticizing myself for something I’ve said or done. | .131 | -.078 | .588 | .120 |
| 16. I feel ashamed of something I’ve done. | .093 | -.006 | .568 | .040 |
| 17. Something bad has happened to me. | .142 | .138 | .561 | -.107 |
| 18. I’m trying to give myself guidance and direction. | -.042 | .353 | .419 | .061 |
| 19. I’m giving myself instructions or directions about what I should do or say. | .018 | -.063 | -.073 | .888 |
| 20. I need to figure out what I should do or say. | .157 | -.053 | -.068 | .652 |
| 21. I tell myself that I “should,” “ought to,” or “have to” do something. | -.079 | .089 | .204 | .493 |
| 22. I’m mentally exploring a possible course of action. | .242 | .118 | .108 | .273 |

Note. $N = 386$.

should do or say and needing to figure out what one should do or say. The intercorrelations among the factors were all significant ($p < .001$), ranging from lows of .19 between Self-Criticism and Self-Management and .22 between Self-Criticism and Self-Reinforcement to highs of .37 between Social Assessment and Self-Reinforcement and .43 between Social Assessment and Self-Management.

Confirmatory factor analysis. Cross-validation indicates that the model is a good model if the same results can be duplicated with a second sample. For all analyses, we analyzed covariance matrices, and we set the metric by fixing the variance of the latents to 1.0. We set up and tested in AMOS the four-factor solution of Sample 1. Although the fit of the model was improved, $\chi^2(203, N = 253) = 643.54$, GFI = .866, CFI = .899, RMR = .066, and RMSEA = .075 (CI_{.95} = .069–.082), an examination of the modification indexes indicated four problematic items. Modification indexes indicated that four items (Table 1, Item 6, 7, 13, and 18) had significant cross-loadings on other factors or correlated errors. Elimination of these four items simplified the model interpretation and improved the fit of the model, $\chi^2(129, N = 171) = 362.988$, GFI = .906, CFI = .922, RMR = .061, and RMSEA = .069 (CI_{.95} = .060–.077). We applied the pattern of fixed and freed parameters to the cross-validation using Sample 2. This analysis found very similar results, with a $\chi^2(129, N = 171) = 376.292$, GFI = .900, CFI = .926, RMR = .068, and RMSEA = .071 (CI_{.95} = .063–.079). All retained items had significant path estimates. Path estimates ranged from a low of .611 (Item 3) to a high of .874 (Item 15). High correlations among all four factors indicated the presence of a higher-order structure. Table 2 presents the correlations among the factors for Sample 1 and Sample 2 (cross-validation sample).

Because of the high correlations among the four independent self-talk factors, we tested a higher order factor structure with Self-Talk as the higher order factor and Social Assessment, Self-Criticism, Self-Reinforcement, and Self-Management as the primary factors. The higher order model was run as a second-order factor. The higher order factor structure resulted in an acceptable fit, with a $\chi^2(131, N = 171) = 373.726$, GFI = .903, CFI = .919, RMR = .063, and RMSEA = .069 (CI_{.95} = .061–.078). Cross-validation using Sample 2 found very similar results as well, with a $\chi^2(131, N = 171) = 387.312$, GFI = .898, CFI = .923, RMR = .072, and RMSEA = .072 (CI_{.95} = .064–.080). Standardized path values of the latents for the combined sam-

ples were all significantly related to the higher order factor: Social Assessment (.935), Self-Criticism (.882), Self-Management (.804), and Self-Reinforcement (.658).

Given the similarity in fit, this provided support for the idea of a hierarchical component to self-talk frequency. However, we decided to use the first-order model as the final model. This decision was based on the expectation that overall self-talk frequency may be less likely than the individual factors to identify relationships with other measures. In addition, different combinations of scores on the factors might be more theoretically or clinically useful than a general self-talk score.

Study 3: Test–Retest Stability

Participants and procedure. Participants were 101 (28 male, 73 female) students from undergraduate psychology courses who completed the STS twice over a 3-month period (at the beginning and near the end of a semester). Total scores on the STS are calculated by summing the scores of the individual items. Possible total scores ranged from 18 to 90. Subscale scores, reflecting the four factors, are calculated by summing the scores of the items associated with each subscale. Possible scores ranged from 4 to 20 for the Self-Reinforcement, Self-Criticism, and Self-Management subscales (4 items each) and 6 to 30 for the Social-Assessment subscale (6 items).

Results. The correlation between total STS scores at Time 1 and Time 2 was significant, $r(99) = .66, p < .001$. Examining the STS subscale scores over time, Social Assessment, $r(99) = .69$; Self-Criticism, $r(99) = .54$; Self-Reinforcement, $r(99) = .50$; and Self-Management, $r(99) = .62$ were significantly correlated (all $ps < .001$). Correlations between individual scale items were all significant, ranging from a low of .36 to a high of .60. These results were similar to those obtained with Duncan and Cheyne’s (1999) measure of overt self-verbalizations and indicated that the STS possesses good near-term stability.

Study 4: Self-Talk and Other Self-Related Traits

In this study, we compared several self-related measures to scores on the STS. These measures included self-esteem, self-consciousness, and positive and negative automatic self-statements as well as social desirability. Theory and research have suggested that individual difference variables can play a role in the self-regulation process (e.g., Carver & Scheier, 1998). In addition, personality variables that reflect affective or attentional aspects of the self should be related in meaningful ways to self-talk tendencies.

Because the multiple facets of the STS include both positive and negative items, we expected that overall frequency of self-talk would be related only weakly to self-esteem. However, we predicted that the Social-Assessment and Self-Criticism factors would be negatively related to self-esteem. People who are insecure or feel badly about themselves should report frequent use of social-assessing and self-critical self-talk. In addition, we expected that the Self-Reinforcement and Self-Management factors would be related positively to self-esteem. Assuming that self-talk might maintain or enhance people’s self-esteem, those who feel good about themselves should report frequent use of self-reinforcing and self-managing self-talk. In addition, given the social inhibitions and negative stereotypes associated with talking to oneself as an adult, we expected a negative relationship between social desirability and self-talk frequency.

TABLE 2.—Zero-order correlations among the four self-talk factors.

| Factor | Sample 1 ^a | | | | Sample 2 ^b | | | |
|--------------------|-----------------------|------------|------------|-----|-----------------------|------------|------------|-----|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Social Assessment | 1.0 | | | | 1.0 | | | |
| Self-Reinforcement | .54 (.046) | 1.0 | | | .61 (.041) | 1.0 | | |
| Self-Criticism | .79 (.031) | .61 (.043) | 1.0 | | .87 (.025) | .62 (.043) | 1.0 | |
| Self-Management | .76 (.034) | .54 (.048) | .66 (.043) | 1.0 | .76 (.032) | .60 (.044) | .66 (.042) | 1.0 |

Note. All correlations are significant at $p = .001$. Standard errors appear in parentheses. ^a $n = 381$. ^b $n = 386$.

Although the STS measures both silent and aloud self-talk and does not distinguish between these, we expected the relationship with social desirability to be a weak one.

We expected that private self-consciousness would be positively related to both total STS and the subscale summed scores because this trait measures the tendency to focus on internal state awareness and self-reflection (Anderson & Bohon, 1996; Fenigstein, Scheier, & Buss, 1975; Trapnell & Campbell, 1999). The internal state awareness (ISA) factor pertains to one's alertness and attentiveness to one's feelings, moods, and thoughts. The self-reflection (SR) factor pertains to figuring oneself out and examining and scrutinizing oneself. Thus, we expected that the ISA factor would be less strongly related to STS scores than the SR factor. We expected that public self-consciousness (the tendency to focus on one's effects on others) would be generally unrelated to STS scores, although we suspected that it might be positively related to the Social-Assessment factor.

Because of their affective emphasis, automatic positive and negative self-statements should be only weakly related to overall STS scores but more strongly related to the STS factors. In particular (and paralleling the self-esteem predictions), we expected that automatic, positive, self-statement frequency would be positively related to scores on the Self-Reinforcement and Self-Management subscales. Alternatively, the frequency of automatic negative self-statements should be positively related to Social-Assessment and Self-Criticism subscale scores.

Participants and materials. Participants were 287 (109 male, 174 female, 4 missing information) students who completed the following measures (in order): the Automatic Thoughts Questionnaire-Revised (ATQ-R; Kendall et al., 1989), Rosenberg's (1965) Self-Esteem Scale (SES), the Self-Talk Scale (STS), the Self-Consciousness Scale (SCS; Fenigstein et al., 1975), and the Marlowe-Crowne Social-Desirability Scale (SDS; Crowne & Marlowe, 1960).

The ATQ-R is a popular measure of automatic thinking used in clinical research (e.g., Jolly & Wiesner, 1996; Lightsey, 1999). It consists of 40 items measuring the frequency with which a variety of positive (10) and negative (30) thoughts "pop into people's heads." A sample positive item is "I feel good." A sample negative item is "What's the matter with me?" Respondents use a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*all the time*) to indicate how often over the past week they have had each of these thoughts. Items are summed, with possible ATQ positive scores ranging from 10 to 50 and possible ATQ negative scores ranging from 30 to 150. In this sample, we found high internal consistency for the overall ATQ-R ($\alpha = .88$) as well as the positive ($\alpha = .87$) and negative ($\alpha = .95$) scales. Kendall et al. (1989) reported that the ATQ-R discriminates well between depressed and nondepressed psychiatric inpatients.

The Rosenberg SES is a commonly used 10-item measure of global esteem or self-worth. Respondents use a 4-point Likert scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*) to indicate their agreement with a set of positive and negative self-evaluative statements. Sample items include "I feel that I have a number of good qualities," and "I certainly feel useless at times." Possible scores range from 10 to 40, with higher scores indicating higher levels of self-esteem. Robinson, Shaver, and Wrightsman (1991) reported that the SES possesses acceptable psychometric properties. The SES shows reliability coefficients ranging between .77 and .88. In addition, it has shown acceptable

convergent validity (e.g., negative associations with anxiety and depression) and discriminant validity (e.g., weak associations with GPA, gender, and age). In this sample, internal consistency was acceptable ($\alpha = .88$).

Fenigstein et al.'s (1975) SCS consists of 23 items measuring public self-consciousness (SC; the tendency to focus on the effects of one's actions and appearance on others; e.g., "I usually worry about making a good impression"), private SC (the tendency to focus on one's internal thoughts, feelings, and states; e.g., "I'm always trying to figure myself out"), and social anxiety (e.g., "I don't find it hard to talk to strangers"). Respondents use a 5-point scale ranging from 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*), with higher scores denoting higher levels of self-consciousness. Fenigstein et al. reported acceptable internal consistency coefficients ranging between .74 and .81 as well as acceptable test-retest reliabilities for the subscales. In this sample, internal consistencies ranged between .71 and .85. Analyses of the SCS (e.g., Anderson & Bohon, 1996; Burnkrant & Page, 1984; Trapnell & Campbell, 1999) have also shown that the private SC factor consists of two related factors—internal state awareness (ISA) and self-reflection (SR).

The Marlowe-Crowne SDS consists of 33 true-false items reflecting desirable but uncommon behaviors (e.g., "I have never intensely disliked anyone") and undesirable but common behaviors (e.g., "There have been occasions when I took advantage of someone"). Scores range from 0 to 33, with higher scores indicating higher socially desirable responding. The SDS possesses adequate reliability and validity (see Robinson et al., 1991). The scale appears to tap aspects of impression management and the general avoidance of disapproval (Paulhus, 1984). For example, high scorers on the SDS are more susceptible to social influence and are more affected by social reinforcement (Robinson et al., 1991). In this sample, internal consistency of the SDS was acceptable ($\alpha = .75$).

Results and discussion. Table 3 presents the correlations of the STS with the other measures. As expected, total STS scores were unrelated to self-esteem. However, scores on three

TABLE 3.—Correlations of Self-Talk Scale total and summed subscale scores with major measures.

| | Self-Talk Scale | | | | |
|------------------------------------|-----------------|-------------------|---------------|-----------|------------|
| | Total | Social Assessment | Reinforcement | Criticism | Management |
| Self-esteem | -.07 | -.12* | .16** | -.26*** | .05 |
| Private self-consciousness | .37*** | .35*** | .24*** | .28*** | .34*** |
| Internal State Awareness factor | .26*** | .22*** | .20** | .12* | .32*** |
| Self-Reflection factor | .36*** | .35*** | .21*** | .33*** | .27*** |
| Public self-consciousness | .13* | .11 | .11 | .11 | .10 |
| Social anxiety | .07 | .14* | -.07 | .09 | .05 |
| Automatic negative self-statements | .20** | .25*** | -.07 | .35*** | .08 |
| Automatic positive self-statements | .16** | .09 | .36*** | -.05 | .12* |
| Social desirability | -.16** | -.16** | -.09 | -.15* | -.15* |

Note. Because of missing data, Ns vary between 279 and 287.
* $p < .05$. ** $p < .01$. *** $p < .001$.

of the STS subscales correlated with self-esteem as predicted. Self-esteem was negatively associated with Social Assessment and Self-Criticism and positively associated with Self-Reinforcement. Self-Management and self-esteem were unrelated.

As expected, private self-consciousness and self-talk frequency were positively related (see Table 3). The ISA factor was most strongly related to the Self-Management STS factor, whereas Social Assessment and Self-Criticism were more strongly related to the SR factor. This is consistent with research on the nature of private self-consciousness. For example, Trapnell and Campbell (1999) argued that the SR factor includes rumination characteristics, whereas the ISA factor shows conscientiousness elements. Rumination tendencies should be more strongly related to social assessing and critical self-talk than to other kinds of self-talk. Engaging in frequent self-managing self-talk should be associated with high conscientiousness.

We did not expect STS total scores to be strongly related to the public SC and social anxiety factors of the SCS and results supported this prediction (see Table 3). Clearly, the STS is not measuring people's tendencies to focus outward onto the social effects of their actions or appearance nor their anxiety about interacting with others. STS total scores were only weakly correlated with the ATQ factors. However, similar to the self-esteem results, the tendency to use social-assessing and self-critical self-talk was positively associated with the frequency of automatic negative self-statements, and the tendency to use self-reinforcing and self-managing self-talk was positively related to automatic positive self-statement frequency. As expected, social desirability was negatively related to STS scores. Increased concerns about impression management and avoidance of disapproval were associated with slight decreases in reports of self-talk frequency.

In summary, these findings provide good preliminary evidence for the validity of the STS. On one hand, total STS scores were modestly related to the tendency to focus inward onto the self and to affect-related self-statement frequency and social desirability. On the other hand, total scores were weakly related to measures of self-evaluation and social anxiety. STS subscales were related to other measures in theoretically meaningful ways. The Social-Assessment and Self-Criticism subscales seem to represent more negative aspects of self-talk, whereas the Self-Reinforcement and Self-Management subscales appear to represent more positive aspects of self-talk.

Study 5: Relationship of Self-Talk to Cognitive Measures

In this study, we further assessed the construct validity of the STS. We expected that individuals who reported high levels of self-talk frequency would also report greater frequencies of other cognitive and behavioral tendencies. Research on obsessive-compulsive disorder suggests that there is a continuum from normal intrusive and ruminative thoughts to serious clinical obsessions (e.g., Mancini, Gragnani, Orazi, & Pietrangeli, 1999; Sanavio, 1988). Research also suggests that an overawareness of self-processes is associated with obsessional, compulsive tendencies (e.g., Baumeister & Heatherton, 1996) and that such tendencies might be associated with a chronic depletion of one's ego resources (Dale & Baumeister, 1999). Thus, we predicted that individuals who report high levels of self-talk frequency should also report high levels of obsessive

and compulsive tendencies. In addition, if self-talk is related to self-regulatory tendencies, individuals who report greater self-talk frequency should report greater amounts of thinking and problem solving (Cacioppo & Petty, 1982; Cacioppo, Petty, Feinstein, & Jarvis, 1996). Therefore we predicted that persons who reported higher levels of self-talk would report higher engagement in and enjoyment of thinking and related cognitive activities.

Participants. During a pretesting session at the beginning of the semester, 195 students completed the STS in addition to several other measures unrelated to this study. At the time of the pretesting, we informed them that they might be called in the future and asked to participate in additional research, although they were under no obligation to do so. We recruited 46 students (20 males, 26 females) from this larger group.

Materials and procedure. Based on their total STS scores, we included students falling in the upper and lower quartiles of the distribution. Mean STS scores were 44.05 for the low self-talk group and 75.79 for the high self-talk group. Two research assistants contacted these students approximately 1 month into the semester. We recruited students to participate in a study on "individual thought processes." The research assistants were blind to the STS scores of the students throughout the study.

On arrival at the testing session, participants completed the Padua Inventory of obsessive-compulsive tendencies (Sanavio, 1988), and the Need for Cognition Scale (Cacioppo, Petty, & Kao, 1984). Order of presentation of the measures was counterbalanced across participants. The Padua Inventory consists of 60 statements that refer to "thoughts and behaviors which may occur to everyone in everyday life." Items are rated using a 5-point scale ranging from 0 (*not at all*) to 4 (*very much*). Analysis of the Padua Inventory (Sanavio, 1988) shows that it consists of four factors: impaired control over mental activities, becoming contaminated, checking behaviors, and motor behavior control loss. Possible scores range between 0 and 240 for the total scale and 0 and 68, 0 and 44, 0 and 32, and 0 and 28 for the previously mentioned subscales. Higher scores denoted higher levels of obsessive-compulsive tendencies. Sanavio (1988) reported internal consistencies for the entire scale ranging from .90 to .94 and test-retest correlations between .78 and .83. In this sample, internal consistencies were similar for the total scale ($\alpha = .89$) as well as the four subscales (α s ranging between .73 and .85). Research shows that the Padua Inventory possesses acceptable construct validity (e.g., Macdonald & de Silva, 1999; McCubbin & Sampson, 2006).

The Need for Cognition Scale measures an individual's preference for engaging in and enjoying effortful cognitive activities. It consists of 18 items rated on a 9-point scale ranging from -4 (*very strong disagreement*) to +4 (*very strong agreement*). Sample items included "The notion of thinking abstractly appeals to me," and "I find satisfaction in deliberating hard and for long hours." Higher scores on this scale denoted greater need for cognition. The Need for Cognition Scale possesses acceptable internal and test-retest reliability (e.g., Sadowski & Gulgoz, 1992). Studies of the construct validity of the scale have shown it to be positively related to intelligence, self-esteem, absorption, and private self-consciousness (Cacioppo & Petty, 1982; Cacioppo et al., 1996). In this sample, internal consistency was acceptable ($\alpha = .88$).

TABLE 4.—Mean differences between frequent and infrequent self-talkers on obsessive–compulsive tendencies and need for cognition.

| Measure | STS Score | | <i>t</i> Value | Cohen's <i>d</i> |
|---|------------------|-------------------|----------------|------------------|
| | Low ^a | High ^b | | |
| Padua Inventory (total) | 32.14 (15.38) | 51.21 (29.80) | 2.69** | 0.80 |
| Impaired control over mental activities | 10.86 (5.24) | 17.83 (11.70) | 2.56* | 0.77 |
| Becoming contaminated | 6.77 (5.60) | 9.13 (6.88) | 1.26 | 0.38 |
| Checking behaviors | 5.23 (3.35) | 8.91 (5.28) | 2.78** | 0.83 |
| Motor behavior control loss | 1.86 (2.36) | 2.35 (3.26) | 0.57 | 0.17 |
| Need for cognition | 10.55 (17.52) | 23.67 (23.10) | 2.16* | 0.64 |

Note. Standard deviations are in parentheses.

^a*n* = 22. ^b*n* = 24.

p* < .05. *p* < .01.

Results and discussion. Table 4 presents the mean differences in obsessive–compulsive tendencies and need for cognition between infrequent and frequent self-talkers. As the table indicates, frequent self-talkers scored significantly higher than infrequent self-talkers on the Padua Inventory total score as well as the “impaired control over mental activities” and “checking behaviors” factors. In addition, frequent self-talkers scored significantly higher than infrequent self-talkers on the Need for Cognition Scale. The Need for Cognition Scale correlated significantly with the overall Padua score, $r(44) = .33$, $p = .05$, as well as with the “checking behaviors” factor, $r(44) = .40$, $p = .01$. Each of the STS subscale scores correlated significantly with the Padua total and the impaired control and checking behaviors scores. Scores on the Need for Cognition Scale correlated significantly only with participants’ Self-Criticism, $r(44) = .32$, $p < .05$, and Self-Management, $r(44) = .31$, $p < .05$ subscale scores.

In summary, as predicted, high scores on the STS were associated with both obsessive–compulsive tendencies and the general enjoyment of effortful cognitive activities (such as thinking abstractly, solving puzzles, and deliberating on mental challenges). Individuals who scored in the upper quartile of the STS reported high levels of self-regulatory cognitive activity, whereas those scoring in the lower quartile of the STS reported low levels of such cognitive activity. These results provide additional support for the construct validity of the STS. Clearly, differences in self-reported cognitive and behavioral tendencies are being tapped by the STS.

Study 6: Refinement of the STS Items and Cross-Validation

At this point, we chose to review and clarify the factor items from the 18-item STS. In particular, we created a more balanced ordering of items within the scale by reducing the number of items from the same subscales appearing together. We also made some wording changes to existing items that we thought would better reflect the facets. Some of the items were unnecessarily complicated (e.g., combining aspects of different self-regulatory functions), and some items could be more clearly stated. Specifically, we reworded one item from the Social-Assessment sub-

scale that was not explicitly social (from “I want to analyze something that recently happened to me” to “I want to analyze something that someone recently said to me”), revised two Self-Reinforcement items (from “I want to support or congratulate myself for something I said or did” to “I want to reinforce myself for doing well” and from “I want to give myself courage to do something” to “I am really happy for myself”), modified two Self-Criticism items (from “I’m criticizing myself for something I’ve said or done” to “I should have done something differently” and from “I feel discouraged about myself” to “I’m really upset with myself”), and changed a Self-Management item (from “I tell myself that I ‘should,’ ‘ought to,’ or ‘have to’ do something” to “I want to remind myself of what I need to do”).

In addition, to equate the number of items for each subscale, we dropped the two weakest items from the Social-Assessment subscale. This STS version consisted of 16 items, with 4 items assessing each subscale. Balancing the number of items for each subscale simplifies the interpretation of scores, makes the comparison of those summed scores more straightforward, and allows more efficient handling of missing data. Finally, two of the response options for the earlier version (2 = *hardly ever*, 4 = *fairly often*) were not the traditional options for an assessment of frequency. Thus, in this version, we changed the response options to a more-customary 5-point Likert format, with 1 = *never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *very often*.

Participants. Participants were 207 students from undergraduate psychology courses who received extra credit for their participation. A total of 139 participants (50 men, 89 women) completed all 5 measures, whereas the remainder (68; 26 men, 41 women, 1 missing information) only completed the STS.

Materials. Participants completed the revised version of the STS, the Verbal-Visual Strategies Questionnaire (VVSQ; Antonietti & Giorgetti, 1993), the ATQ-R (Kendall et al., 1989), Rosenberg’s (1965) SES, and the Marlowe–Crowne SDS (Crowne & Marlowe, 1960). The VVSQ consists of 18 items pertaining to the tendency to use verbal strategies (e.g., “When I remember things that I have read, I recall the exact words of the text”) or visual strategies (e.g., “When I read a story, I visualize the described situations and characters”) when thinking and processing information in a deliberative fashion. Responses are made on a 5-point scale ranging from 1 (*never or very seldom*) to 5 (*very often or always*). Separate verbal and visual scores are calculated. The scale’s authors (Antonietti & Giorgetti, 1993) generated an English translation of the VVSQ and worked with us in ensuring the accuracy of the back translation. No published psychometric properties for the English version of the VVSQ are available. However, in this study, we obtained Cronbach’s alpha coefficients of .77 for the visual scale and .63 for the verbal scale.

Results and discussion. Using the entire sample, the confirmatory factor analysis on the 16-item version showed acceptable fit for the four-factor model, $\chi^2(98, N = 136) = 191.79$, GFI = .899, CFI = .945, RMR = .066, and RMSEA = .068 (CI_{.95} = .054–.082). The original four-factor structure was still clearly defined in the new data set. Cronbach’s alpha coefficients for each subscale were in the acceptable range (Social Assessment = .82, Self-Reinforcement = .89, Self-Criticism

= .83, and Self-Management = .79). Regression weights for the factor items are presented in Table 5. All factor covariances were significant ($p < .001$) and ranged from lows of .41 ($SE = .07$) between Social Assessment and Self-Reinforcement and .47 (standard error [SE] = .07) between Self-Reinforcement and Self-Criticism to highs of .93 ($SE = .03$) between Social Assessment and Self-Management and .81 ($SE = .04$) between Self-Criticism and Self-Management. We provide the final 16-item STS as well as descriptive data from the sample in the Appendix.

As with the earlier version of the scale, the STS total and subscale scores correlated with the other measures in meaningful ways (see Table 6). In particular, ATQ-positive scores correlated positively with Self-Reinforcement, whereas ATQ-negative scores correlated positively with Self-Criticism and Social Assessment. Total STS scores correlated significantly with ATQ-negative scores but not with ATQ-positive scores. Self-criticism was negatively correlated with self-esteem. Social desirability was unrelated to STS total and subscale scores.

Scores on the verbal scale of the VVSQ were moderately correlated with Self-Reinforcement and more strongly correlated with Social Assessment, Self-Criticism, Self-Management, and total STS scores. Scores on the visual scale of the VVSQ were less strongly related to STS scale scores. Verbal and visual VVSQ scores were not significantly correlated with positive and negative ATQ scores. These results suggest that the STS measures more deliberative than automatic self-regulatory strategies.

Study 7: Test-Retest Stability of 16-item STS Scale

Participants and procedure. As we did with the earlier 18-item version of the STS in Study 1, we assessed the test-retest stability of the final 16-item revised version. Participants were 74 (29 male, 45 female) students who completed the STS twice over a 3-month period (at the beginning and near the end of a semester).

Results. The correlation between total STS scores at Time 1 and Time 2 was significant, $r(72) = .69, p < .001$. Examining the STS subscales over time, Social Assessment, $r(72) = .71$, Self-Criticism, $r(72) = .56$, Self-Reinforcement, $r(72) = .50$, and Self-Management, $r(72) = .64$ were significantly correlated (all $ps < .001$). Correlations between individual scale items were all significant, ranging from a low of .23 (Item 8) to a high of .63 (Item 11). These results indicated that the final version of the STS possesses good near-term stability.

GENERAL DISCUSSION

In this article, we described the development and preliminary validation of a new measure of self-talk in adults. The results indicated that self-talk frequency is a multidimensional construct that differentiates individuals. Although there is room for improvement in the fit of the model, the existence of the four facets is supported by the confirmatory factor analysis. The preliminary validation data demonstrate that self-talk may manifest itself in individuals in very different ways and that how self-talk is manifested in an individual is likely to be related to other personality and individual difference variables.

There is a popular saying that “It’s okay to talk yourself as long as you don’t answer yourself.” People’s stereotypes of mental illness include the inappropriate externalization of

TABLE 5.—Confirmatory factor analysis of the final Self-Talk Scale: Four-factor structure.

| Item | Factor | | | |
|--|-------------------|--------------------|----------------|-----------------|
| | Social Assessment | Self-Reinforcement | Self-Criticism | Self-Management |
| I try to anticipate what someone will say and how I’ll respond to him or her. [11] | .897 (.076) | | | |
| I want to analyze something that someone recently said to me. [6] | .890 (.069) | | | |
| I want to replay something I’ve said to another person. [16] | .788 (.073) | | | |
| I’m imagining how other people respond to things I’ve said. [4] | .787 (.073) | | | |
| I’m proud of something I’ve done. [8] | | .988 (.063) | | |
| I want to reinforce myself for doing well. [13] | | .941 (.058) | | |
| I am really happy for myself. [5] | | .829 (.065) | | |
| Something good has happened to me. [2] | | .810 (.072) | | |
| I’m really upset with myself. [10] | | | .934 (.069) | |
| I feel ashamed of something I’ve done. [7] | | | .853 (.074) | |
| Something bad has happened to me. [14] | | | .808 (.067) | |
| I should have done something differently. [1] | | | .693 (.064) | |
| I’m giving myself instructions or directions about what I should do or say. [12] | | | | .799 (.067) |
| I’m mentally exploring a possible course of action. [9] | | | | .761 (.070) |
| I need to figure out what I should do or say. [3] | | | | .733 (.067) |
| I want to remind myself of what I need to do. [15] | | | | .643 (.065) |

Note. Numbers in parentheses refer to standard errors; numbers in brackets refer to Self-Talk Scale item number.

our normally “hidden” self-talk. Talking out loud to ourselves sometimes leads to questions about our sanity. The STS provides evidence that some aspects of self-talk are associated with greater emotional or behavioral problems, whereas other aspects are not.

TABLE 6.—Correlations of 16-Item Self-Talk Scale total and subscale scores with major measures.

| Measure | Self-Talk Scale | | | | |
|--|-----------------|-------------------|--------------------|----------------|-----------------|
| | Total | Social Assessment | Self-Reinforcement | Self-Criticism | Self-Management |
| Self-Esteem | -.06 | -.06 | .02 | -.21* | .04 |
| Automatic negative self-statements | .22** | .18* | .09 | .31*** | .13 |
| Automatic positive self-statements | .06 | .07 | .16 | -.14 | .10 |
| Social desirability | .01 | .04 | .00 | .00 | -.01 |
| Visual-Verbal Strategies Questionnaire | | | | | |
| Visual scale | .26** | .28** | .17* | .14 | .24** |
| Verbal scale | .47*** | .44*** | .21* | .44*** | .46*** |

Note. Because of missing data, *N*s vary between 133 and 139.
 p* < .05. *p* < .01. ****p* < .001.

In general, people who talk more to themselves are more inwardly self-focused, experience more frequent automatic self-statements, show greater obsessive-compulsive tendencies, have a higher need for cognition, and use more verbal compared to visual information processing. More specifically, those people who report higher levels of social assessing and critical self-talk also report lower self-esteem and more frequent automatic negative self-statements. Alternatively, those reporting higher levels of self-reinforcing self-talk report more positive self-esteem and more frequent automatic, positive self-statements.

Our results suggest that the STS captures well the more deliberative, nonaffective self-regulatory functions of inner experience. We found stronger relations with those measures that were more behavioral (e.g., obsessive-compulsive, need for cognition, and verbal information-processing tendencies) than measures that were primarily affective (e.g., self-esteem and automatic negative thoughts). This pattern is consistent with our original goal of developing a scale that taps a range of possible functions served by self-talk.

The results also suggest that self-talk serves multiple purposes. Whether self-talk causes or reflects emotional or behavioral problems (or their absence) is an open question. There is reason to think that both processes can operate. For example, increases in social-assessing and self-critical self-talk could lead to decreased mood and increased goal conflict. On the other hand, experiencing social embarrassment or task failure could increase the frequency of these kinds of self-talk. People might use reinforcing self-talk to elevate their mood and neutralize negative events, or their self-talk might reflect that they are in a positive mood or that good things have already happened to them. In addition, it is possible that some degree of criterion contamination, in the form of content overlap in the measures, might explain the observed relationships.

There may also be different profiles associated with more positive and negative self-talkers. That is, some frequent self-talkers may be characterized by high levels of social assessment and self-criticism (and low levels of reinforcing and managing self-talk), whereas other frequent self-talkers may show high levels of reinforcing and managing self-talk (and low levels of social assessing and critical self-talk). These patterns would be

consistent with the states of mind research that examines how the relative balance of positive and negative self-statements is associated with different kinds of psychopathologies (Schwartz & Garamoni, 1989). It is conceivable that some individuals are simply more prone to talk to themselves. When good things happen to them, these people engage in more reinforcing self-talk. When bad things happen, there may be more social assessing and critical self-talk. Is self-talk frequency a state or trait characteristic? It is unclear what factors affect changes in one's typical self-talk frequency or whether certain individuals show greater degrees of self-talk stability. Given that we found support for a hierarchical component to self-talk frequency, additional use and validation of the STS is necessary to assess the relative importance of the higher order and primary factors. Future research using the STS can help to address all these questions.

Limitations

One limitation of the STS is that it is a self-report measure. We have yet to assess the correspondence between self-reported self-talk and behavioral instances of it. For example, to what extent do laboratory or naturalistic observations of self-talk (e.g., Duncan & Cheyne, 1999) correspond with overall and subscale scores? How well does the assessment of immediate self-talk experience (such as through experience sampling) relate to STS scores? Addressing these questions would provide further data on the validity of the STS.

Another potential limitation of the STS is that it is a general assessment rather than a situation-specific one. When completing the measure, respondents may be recalling their most salient instances of talking to themselves. If emotionally charged instances are most salient to respondents, then their assessment of other facets may not reflect the true frequency of those types. Additionally, all the research reported here was based on relatively young college student samples. Future research needs to address whether the STS generalizes to broader adult samples.

Finally, the STS may neglect additional self-talk functions. For example, the facets we identified do not assess the avoidance or management of future, negative events (e.g., "I want to prevent something bad from happening") and the approach or management of future, positive events (e.g., "I want to make sure I will succeed at something"). Thus, there may other facets of self-talk not tapped by the STS.

Implications for Use of the STS

The STS has several potential applications in personality, social, and clinical psychology. How does one know when a person is actively engaged in self-regulation? One might use this measure to assess experimental manipulations in the exploration of situational effects on self-regulation. For example, experiencing a state of objective self-awareness or self-focus should be associated with greater frequency of self-talk (Davis & Brock, 1975). The study of self-talk frequency might also prove to be interesting in relation to several social-cognitive and self-related phenomena such as rumination and goal progress (Conway, Csank, Holm, & Blake, 2000; Martin & Tesser, 1996), counterfactual thinking (Roese, 1997), and the certainty or clarity of the self-concept (Baumgardner, 1990; Campbell et al., 1996).

An additional possible use of the STS is to assess differences in self-regulation ability as an individual difference. For

instance, do frequent or infrequent self-talkers drain their ego resources more quickly (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven, Tice, & Baumeister, 1998)? One might argue that frequent self-talkers are more practiced at or comfortable with regulating their behavior. On the other hand, as suggested earlier, greater frequency of self-talk may be a reflection of self-regulatory problems.

An important clinical question is to what extent individuals can be taught to be more aware of their self-talk. By using the STS, the relationship of frequency of self-talk to problems such as low self-esteem, depression, and obsessive-compulsive tendencies can be explored in more detail. The STS can also be used to assess changes in frequency of self-talk following cognitive-behavioral therapy or training. By identifying individual differences in the frequency of self-talk (especially social-assessing and critical self-talk), a clinician might be able to design client-specific interventions. Such interventions could facilitate the practice of having clients identify and change maladaptive self-talk (e.g., Beck, 1976).

In summary, the STS provides a new measure of individual differences in frequency of self-talk. The STS suggests that self-talk frequency consists of four primary factors. As such, the STS gives researchers the opportunity to study many neglected cognitive, emotional, and behavioral self-regulatory aspects of self-talk.

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APPENDIX

Self-Talk Scale and Descriptive Data

Researchers have determined that all people talk to themselves, at least in some situations or under certain circumstances. Each of the following items concerns those times when you might “talk to yourself” or carry on an internal conversation with yourself (either silently or out loud).

Determine how true each item is for you personally by circling the appropriate number next to each item. Assume that each item begins with the statement: “I talk to myself when . . .” Be sure to rate each item. Please take your time and think carefully about each item. Use the following scale to rate each item:

| | | | | |
|-------|--------|-----------|-------|------------|
| 1 | 2 | 3 | 4 | 5 |
| Never | Seldom | Sometimes | Often | Very Often |

| I TALK TO MYSELF WHEN | M | SD |
|--|------|------|
| 1. I should have done something differently [self-criticism] | 3.64 | .99 |
| 2. Something good has happened to me [self-reinforcement] | 3.20 | 1.14 |
| 3. I need to figure out what I should do or say [self-management] | 3.92 | 1.06 |
| 4. I'm imagining how other people respond to things I've said [social assessment] | 3.34 | 1.13 |
| 5. I am really happy for myself [self-reinforcement] | 3.04 | 1.07 |
| 6. I want to analyze something that someone recently said to me [social assessment] | 3.55 | 1.12 |
| 7. I feel ashamed of something I've done [self-criticism] | 3.01 | 1.16 |
| 8. I'm proud of something I've done [self-reinforcement] | 3.03 | 1.12 |
| 9. I'm mentally exploring a possible course of action [self-management] | 3.45 | 1.09 |
| 10. I'm really upset with myself [self-criticism] | 3.33 | 1.10 |
| 11. I try to anticipate what someone will say and how I'll respond to him or her [social assessment] | 3.42 | 1.21 |
| 12. I'm giving myself instructions or directions about what I should do or say [self-management] | 3.42 | 1.08 |
| 13. I want to reinforce myself for doing well [self-reinforcement] | 2.99 | 1.04 |
| 14. Something bad has happened to me [self-criticism] | 3.08 | 1.06 |
| 15. I want to remind myself of what I need to do [self-management] | 3.71 | 1.00 |
| 16. I want to replay something that I've said to another person [social assessment] | 3.52 | 1.13 |

Note. Relevant facets appear in brackets next to each item. Total Self-Talk Scale score (range = 16–80) is the sum of all items. Individual subscale scores (range = 4–20) are calculated by summing the four items associated with each facet.

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