

Research Article

Applying the Transtheoretical Model to Stuttering Management Among Adolescents: Part I. Scale Development

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Purpose: This article is the first in a two-part series on the application of the *Transtheoretical Model* to stuttering management among adolescents. In this article, we describe the process of developing measures to assess stage of change (SOC) by defining behaviors of stuttering management, as well as the two primary cognitive constructs that underlie one's readiness to make behavioral change: decisional balance (DB) and situational self-efficacy (SSE). This work hinges on the ability to develop an operational definition of what it means to successfully manage or do something positive about one's stuttering.

Method: We used an iterative process to develop the three scales. Through qualitative analysis of key informant interview and focus group transcripts with 24 adolescents who stutter and 26 clinicians specializing in stuttering, we developed stuttering-specific SOC, DB, and SSE scales. The drafted scales were cognitively tested with nine adolescents who stutter.

Results: Thematic analysis yielded a three-part definition of successful stuttering management that formed the basis

for the SOC scale: (a) learning and using strategies to modify speech or stuttering, (b) changing negative thoughts and attitudes regarding stuttering, and (c) talking without avoiding sounds, words, or situations. Results from this analysis support a broader view of successful stuttering management; that is, it is likely that doing so requires more than just behavior change, which has long been considered the main objective of stuttering treatment. Additional analyses yielded pros and cons of managing stuttering (62 items for the DB scale) and situations in which it is difficult to manage stuttering (39 items for the SSE scale).

Conclusions: Qualitative analyses provided a three-part definition of "stuttering management" and a comprehensive pool of items that would allow measurement of DB and SSE that underlie readiness to manage stuttering among adolescents. In the companion article in this two-part series, we describe the next step in scale development: exploratory scale validation of the drafted SOC, DB, and SSE scales.

Sixteen-year-old Liam comes to the clinic with his parents seeking help for his stuttering. His parents tell you that while Liam had worked with many school-based therapists over the years, his stuttering has "gotten worse" in recent months and they are frustrated that he "refuses to do anything about it." They are worried

that Liam's stuttering will get in the way of him going to college, getting a good job, and having steady relationships with friends and romantic partners. As the evaluation goes on, it becomes clear to you that Liam is disillusioned with therapy, telling you that "nothing seems to help." You find yourself in a challenging situation in that Liam seems unmotivated to do much of anything about his stuttering, while his parents are growing increasingly concerned about him, his stuttering, and his future. You decide to spend time with Liam trying to understand what, if anything, *he* wants to change about stuttering and what he is ready to do to make those changes.

The preceding clinical scenario is one that is frequently experienced by speech-language pathologists (SLPs) who work with adolescents who stutter. The variable and complex nature of stuttering both within and across adolescents who stutter presents multiple challenges to successful intervention. While research has shown that stuttering therapy is effective

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in reducing both overt and covert aspects of stuttering (e.g., Blomgren, 2013; Boberg & Kully, 1994; Bothe et al., 2006; Caughter & Dunsmuir, 2017; Fry et al., 2014; Hancock et al., 1998; Hearne et al., 2008; Herder et al., 2006; Irani et al., 2012; Rodgers et al., 2020), long-term maintenance of posttreatment gains can elude up to 70% of people who stutter (Andrews & Craig, 1988; Block et al., 2005; Craig & Calver, 1991). The most parsimonious explanation for either lack of progress in therapy, or the unsustainability of posttreatment gains in stuttering treatment, is that these outcomes rest largely on the interaction of multiple behavioral, cognitive, affective, and relational factors—or “common factors” that cut across treatment approaches (Wampold, 2015).

The concept of “common factors” in therapy outcomes first emerged from a series of meta-analyses conducted by researchers in clinical psychology. The purpose of these studies was to see which treatment approach or set of techniques in psychotherapy leads to the best outcomes (Asay & Lambert, 1999). To the surprise of many investigators, and replicated across a number of meta-analyses, results showed that (a) therapy is better than no therapy and (b) one approach does not lead to a significantly better outcome than another. Furthermore, in attempts to explain the variance in outcomes, researchers identified four specific factors, common to all treatment approaches: (a) the specific treatment techniques, (b) the characteristics of the client and their environment (e.g., family support, cognitive abilities, psychological health, readiness to change), (c) the alliance formed between the client and the clinician, and (d) the clinician’s and client’s hopefulness that change can happen. The first one, technique, is *specific* in that it is unique to different clinicians working with their individual clients; the rest, however, are factors that cut across all therapy contexts (thus, referred to as *common factors*), regardless of the specific approach and strategies used to target behavior change. In fact, some researchers have argued that it is these last three factors that contribute the most to treatment outcomes—more than the specific techniques used (Wampold, 2015).

Researchers in speech-language pathology have replicated these findings with different populations. For example, meta-analyses have shown that therapy is better than no therapy for individuals with aphasia (Robey, 1998), developmental language disorders (Law, et al., 2004), and stuttering (de Sonnevile-Koedoot et al., 2015; Herder et al., 2006; Nye et al., 2013) but that no single therapy approach results in a significantly better outcome. These researchers have also proposed the need for studies that examine the sources of variability in treatment outcomes across different investigations (of the same approach) as well as across individuals receiving therapy in the field. In particular, Robey (1998) has called for the use of more “focused hypotheses” in research, for example, studies in which treatment techniques are held constant while the characteristics of the client and clinician vary.

Empirical study of the client characteristics that facilitate or hinder progress in stuttering therapy is a crucial need as clinicians grapple with the observations that (a) results

from efficacy studies of the same therapy approach can differ according to which client variables are controlled and (b) a particular approach may be shown to be efficacious in a controlled study, but that does not always translate to its effectiveness in the field. Clinical researchers have implicated a variety of the within-client factors that contribute to variability in treatment outcomes, including the difference between actual and perceived mastery of the skills taught for changing speech and stuttering, as well as discomfort with how a new way of speaking feels or sounds and, thus, an unwillingness to use therapy techniques (Andrews & Craig, 1988). Additional obstacles to successful therapy outcomes include the persistence of negative attitudes about stuttering and speaking (e.g., Craig & Hancock, 1995), external locus of control (Guitar, 1976; Lee et al., 2011), a poor relationship or alliance between the therapist and the person who stutters (Plexico et al., 2010), and continued avoidance or the inability to incorporate the role of “normally fluent speaker” into one’s established identity as a person who stutters (DiLollo et al., 2002).

We propose a new direction in uncovering the sources of variability in stuttering therapy outcomes—that the cognitive processes found to underlie the process of intentional behavior change in other clinical populations will lead to a deeper understanding of the factors that both help and hinder durable treatment outcomes in stuttering therapy. A stage-based framework for understanding the cognitive shifts that support readiness to change provides such a foundation. For instance, one’s readiness to actively engage in stuttering therapy may be characterized by moving through a series of stages, and people who stutter are distributed across them (Burditt et al., 2009). These “stages of change” range from not being ready to seek help to active maintenance of a target behavior. Using a stage-based framework for understanding the process of change has led to the conceptualization of poor treatment outcomes, noncompliance with treatment protocols, and relapse as the result of a mismatch between the therapy tools used in treatment and clients’ readiness to engage with them. Most commonly, this mismatch is seen when an individual is contemplating making some sort of change, but not ready to act. The concept of *change readiness* and the cognitive processes that underlie it are at the heart of the *Transtheoretical Model* of intentional behavior change (Prochaska, 2002; Prochaska & DiClemente, 1984). This model has some similarities to the theory of planned behavior, which considers one’s readiness to change as the combined result of three factors: (a) how personally acceptable or unacceptable the behavior is, (b) how acceptable or unacceptable it is to others, and (c) the likelihood of success in changing the behavior (Ajzen, 1991).

Transtheoretical Model: Basic Principles and Constructs

The *Transtheoretical Model* is an integrative theoretical framework for understanding one’s *readiness* for taking

intentional action toward change—or actively engaging in the use of strategies to change behavior or attain goals. Readiness is conceptualized as a temporal progression of stages predicted by shifts in how the person thinks about the problem. This model has been shown to characterize the change process in adolescents and adults across a range of health behaviors, including exercise (Berry et al., 2005; De Bourdeaudhuij et al., 2005), condom use (Grossman et al., 2008; Prat et al., 2011), blood and organ donation (Burditt et al., 2009; Hall et al., 2007), and pain management (Fors et al., 2010). Similar to stuttering, making changes in any of these health domains requires a person to engage in therapy protocols, self-directed change behaviors, or both. There is robust evidence that stage-based interventions promote cognitive changes that move the individual toward active engagement in or maintenance of behavior change (e.g., Evers et al., 2007; Marcus & Simkin, 1994; Perz et al., 1996; Prochaska & DiClemente, 1984).

Our working hypothesis for the long-term aim of this project was that positive stuttering therapy outcomes among adolescents are linked to the goodness of fit between what the teen believes needs to change about stuttering and their readiness to engage in the intervention methods that will facilitate that change. As such, our ability to measure and influence this relationship over time is key to positive outcomes in treatment. The research described in this two-part series is the first step in the process of exploring the application and validity of a stage-based model of change readiness among adolescents who stutter: defining stuttering management and developing scales to assess readiness to engage in the processes that characterize it. The key constructs of the Transtheoretical Model and their relationships are described in the following sections.

Stages of Change

The central, organizing construct of the Transtheoretical Model is the stage, or phase, of change itself, in which “readiness to change” is a series of five temporally linked stages (Prochaska, 2002).

As shown in Figure 1, the earliest point in time within the change process is *Precontemplation*. Precontemplators are those who, for a variety of reasons, are not ready to take action in changing their behavior. Often, these individuals are not seeking solutions because they deny that a problem exists. At the same time, precontemplators may feel that their situation is hopeless and that “nothing can help.” These may be adolescents who stutter who deny that stuttering is a problem for them or those who find their previous therapy unhelpful and are therefore not hopeful that they can change. These adolescents may be in therapy because of their parent’s wishes, but they themselves do not want to be there.

The next stage in the change process is *Contemplation*. People in this phase are considering taking action in the foreseeable future. While far from committing to making plans, they are beginning to acknowledge the problem and think about possible solutions. At the same time, fear of

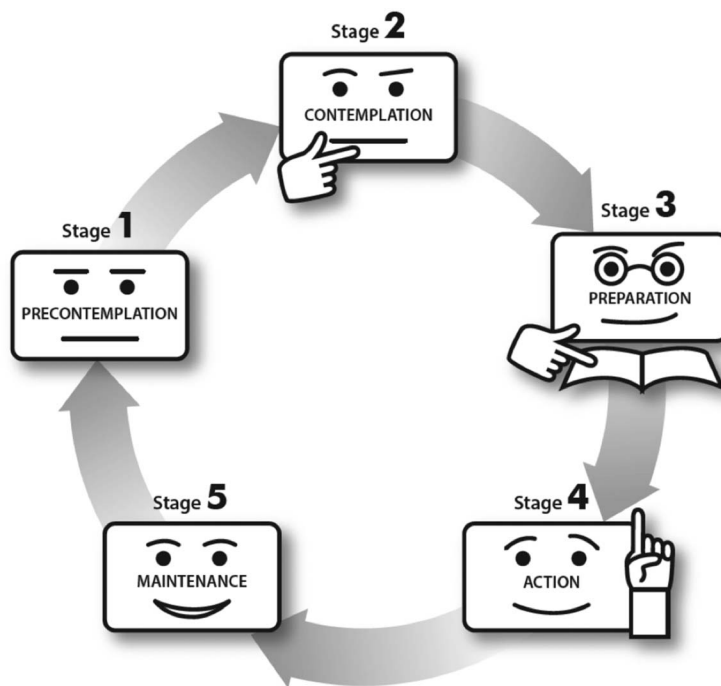
failure may be an obstacle to seeking a deeper understanding of the problem and what can help. A typical feature of the Contemplation stage is that the individual is ambivalent about taking steps toward change; that is, the pros and cons of making a change weigh equally. Resolving ambivalence toward the pros and cons of making a change is a key predictor of one’s readiness to engage in the work necessary to change. Adolescents who stutter may be in Contemplation if they become aware that other people who stutter (e.g., peers, public figures) have made positive changes to their own stuttering. They may start telling important people in their life that they want to start going to speech therapy or browse the Internet for information about stuttering.

Preparation is characterized by the individual developing plans to do something in the immediate future (i.e., within the next month or so). This usually takes the form of making an appointment or gathering information about possible solutions and trying things out on their own. Individuals in Preparation are taking the beginning steps toward embarking on the change process. In this stage, adolescents who stutter may ask their parents to help them make an appointment to see a speech therapist, or they may read books or watch videos about how other people who stutter have changed.

The next stage in the change process is *Action*. In this phase, the person is intentionally and actively engaged in modifying some aspect of their environment or their own behavior. Here, the most important element is the consistent effort to act, not necessarily the outcomes of the actions taken. While obviously behavior change is desired, persistent and steady action is the earliest sign of the individual’s commitment to do something about a problem and the first evidence that they and others will see them taking action. As such, it can be a source of confidence and hopefulness for the individual and positive regard from family and significant others. Adolescents who stutter and who are in Action are likely participating in regular speech therapy sessions or self-help/support groups. They are also engaging in new communication behaviors outside of therapy (e.g., making phone calls, pseudostuttering, disclosing their stuttering).

Finally, the *Maintenance* stage represents the end point in the progression of behavior change. In this phase, the individual is actively working to both maintain the changes they have made in their behavior and prevent relapse. A key characteristic of the Maintenance stage is the varying amounts of time that people can operate within it. For example, some people can achieve Maintenance and then relapse or regress to an earlier stage within as little as 6 months, while others can experience a lifetime of sustained change. The varying lengths of time in which people who stutter can sustain posttherapy gains aligned with this observation. In Maintenance, adolescents who stutter would be actively approaching speaking situations that they know are challenging. They are likely able to “move on” after a difficult moment of stuttering.

Two important and defining features of stage *movement* in the Transtheoretical Model are essential to note. The first is that relapse, or the return of previous behaviors

Figure 1. Five stages of change within the Transtheoretical Model.

after a period of observable change, can occur anywhere along the continuum of change, but is most often seen in action or maintenance. Often, the person will return to Contemplation (although they may return to other stages) following a period of relapse. The main point is that both individuals and their therapists should know that relapse tends to be the norm rather than the exception, and it should be planned for in the course of treatment. The second characteristic of stage movement is that it is typical for individuals to move through the cycle of change more quickly following relapse. As such, while relapse is fairly common, durable change (i.e., being in Maintenance) can be achieved in less time than originally obtained once the person has begun the process again. This process of going through multiple cycles of the change process is known as “recycling.”

In addition to stage of change (SOC) itself, the Transtheoretical Model and its supporting evidence implicate two cognitive constructs—decisional balance (DB) and situational self-efficacy (SSE)—as reliable predictors of change placement. These constructs represent distinct ways of thinking about change that either inhibit or facilitate the process. Most importantly, we hold the position that, as with other clinical populations, both can be addressed in therapy to support the client’s readiness to make positive changes to stuttering.

DB

The cognitive construct of DB is a dynamic process of internal conflict resolution that occurs when the individual simultaneously considers the gains (pros) and losses (cons)

of making a behavior change. DB predicts stage placement in the behavior change process; for example, as one moves from Precontemplation toward Action, the relative importance of the pros of making a change increases, while the importance of the cons for making that same change decreases. As has been shown in numerous investigations, the shifting importance of the pros and cons of both embarking on the process of change and the change itself is a reliable indicator of one’s position on the path to behavior change (Hall & Rossi, 2004; Mauriello et al., 2007; Redding et al., 2015).

SSE

SSE refers to the confidence one has in implementing behavior change in challenging situations and the extent to which they will be actively engaged in behavior change after setbacks. SSE generally increases from Precontemplation to Preparation, reduces modestly in the Action stage when behavior change implementation requires the most effort, and then increases again when the change is solidified in the Maintenance stage. Similar to DB, SSE has been shown to be a robust predictor of both stage placement and movement and relapse in treatment programs for a range of health behaviors (O’Hea et al., 2004; Schiffman et al., 2004).

Applications of the Transtheoretical Model to Communication Disorders

Some researchers and clinicians in communication disorders have proposed that the Transtheoretical Model

aptly characterizes the change process experienced by individuals with speech, voice, and hearing disorders (e.g., Babeu et al., 2004; Manning, 2006; Turnbull, 2000; van Leer et al., 2007). The patterns of change and relapse described for people with communication disorders, including stuttering, are theoretically similar to what has been observed for other target behaviors such as healthy eating, exercise, blood and organ donation, stress management, and condom use. In particular, Boberg and Kully (1994), Craig (1998), and Hancock and Craig (1998) emphasized the cyclical nature of the gains-losses in stuttering management that people who stutter often experience over time, with Craig (1998) concluding that, “clinicians should not be surprised when their clients experience relapse. They should attempt to enhance motivation by discussing the relapse–success cycle and offer self-management and cognitive behavioral strategies which may help regain and maintain fluency skills” (p. 23). Manning (2006) echoed this point by describing stuttering therapy as a “pattern of cyclical movement through a process of gradually more successful management of stuttering-related behaviors and processes” (p. 140).

Emerging evidence supporting the applicability of the Stages of Change model to stuttering has appeared in the literature. In a preliminary study, Floyd et al. (2007) modified an existing Stages of Change survey from the literature (McConaughy et al., 1983) to make it relevant to the experiences of people who stutter and administered it to a group of adults. Similar to the original *Stage of Change survey*, this modified version was a 32-item questionnaire consisting of four subscales, each with eight items, measuring five distinct stages of change: precontemplation, contemplation, preparation, action, and maintenance. Participants who stutter were instructed to respond to each item using a 5-point Likert format, where 1 corresponded to “strongly agree” and 5 corresponded to “strongly disagree.” Examples of stage-matched items included “As far as I’m concerned, my speech doesn’t need changing” (Precontemplation) through “I’m worried that I might slip back on stuttering I’ve already changed, and so I’m seeking help” (Maintenance). Confirmatory factor analysis indicated that the modified survey was a relatively good fit for participant responses, the structure derived from a subsequent exploratory analysis provided a significantly better fit to the observed data. These findings led us to conclude that developing a survey that incorporated items that better reflected the unique behavioral, cognitive, and affective variables that characterize stuttering would better discriminate stages of readiness to make positive changes to stuttering.

The methods we used in the current investigation to develop measures for adolescents who stutter were replicated from published procedures for applying the Transtheoretical Model in different clinical populations. This involved a multistep, iterative process to construct the three core measures, or scales, of readiness to change for adolescents who stutter: SOC, DB, and SSE (Redding et al., 2006).

Neural Plasticity Makes Adolescence a Prime Period for Learning to Change

In this study, we defined adolescence as individuals ranging from 13 to 21 years of age (Allen & Waterman, 2019). We take the position that the period of development that extends from early to late adolescence is a prime time to study factors that underlie readiness to change and learning how to use the strategies to do so. Advances in neuroscience research have shown that, compared with childhood and middle to late adulthood, adolescence is marked by cortical maturation in the neural regions specifically responsible for learning and maintaining new behaviors and habits (both adaptive and maladaptive). Furthermore, during this time, adolescents are developing and refining more nuanced skills that allow them to process interpersonal dynamics more accurately and quickly, as well as increasing their self-regulation abilities (Wolfe, 2002). This time of enormous neuroplasticity is a key characteristic of adolescence—a developmental period that currently begins earlier and ends later than in previous decades (and centuries). The lengthening of adolescence is caused by a number of biological, social, cultural, and environmental factors such as earlier onset of puberty and the delayed transition into assuming adult responsibilities. The years between 13 and 21 can be considered an “age of opportunity” (Steinberg, 2014) for learning new behaviors so that the foundation for durable change is laid. There is also evidence that substantial neurobiological development continues well into one’s 20s (Galván, 2017; Guyer et al., 2016; Sawyer et al., 2018). This becomes an important consideration for the timing of stuttering therapy. That is, the “age” of the stuttering problem shapes the experience of stuttering for people who stutter, often profoundly. The more time that has passed since the stuttering onset, the more time the person has had to experience and internalize social and personal reactions to stuttering. For many people who stutter, these reactions tend to be negative, leading to a whole array of chronic and unhelpful behaviors, thoughts, and feelings. The convergence of increased neural plasticity with chronic stuttering in this vulnerable stage makes adolescence a prime period for learning to change the unhelpful thoughts, feelings, and behaviors that characterize stuttering.

Purpose

The purpose of this research is to extend our preliminary work in the applicability of the Transtheoretical Model to the population of adolescents who stutter. As discussed above, this period is a time when the behaviors of stuttering and related thoughts and attitudes are beginning to solidify, while enhanced abilities for learning and change are rapidly advancing. As such, we chose to focus the current study on the development of measures to identify specific ways of thinking that can inhibit or promote readiness to make positive changes in stuttering in adolescents, including early (10–13 years), middle (14–17 years),

and late (18–21 years) adolescence (Allen & Waterman, 2019). To that end, this article is the first of two that together describe the multistep development and validation of three core Transtheoretical measures as they pertain specifically to the adolescent population of people who stutter—SOC, DB, and SSE (Redding et al., 2006). In this article, we describe the process for developing these three scales. In the companion article, we explore the validity of the three scales.

Method

In the following sections, we describe the process for developing the SOC, DB, and SSE scales in sequential order, including: (a) participants for key informant interviews and focus groups, (b) topics and procedures for interviews and focus groups, and (c) qualitative analyses of key informant interview and focus group transcripts to derive scale items. All participant recruitment and procedures used in this study were approved by the Institutional Review Board at The University of Iowa (ID # 201309814).

Participants

The key informant interviews and focus groups were conducted with 24 adolescents who stutter and 26 SLPs who self-identified as specializing in stuttering therapy. Adolescents who stutter were between the ages of 13 and 21 and volunteered to participate through their attendance at (a) the annual convention of FRIENDS (the National Association of Young People Who Stutter), (b) a summer residential stuttering therapy program for adolescents who stutter at the University of Iowa, or (c) a therapy group for adolescents held at the Stuttering Therapy and Resource Center of Long Island. All adolescents reported a history of individual or group therapy for their stuttering, varying in duration.

The stuttering specialists had an average of 16 years of clinical experience working with clients who stutter (range: 7–21 years) in university clinics, private clinics, and school settings. All participants were invited to participate by letter or e-mail or through the authors' invitation at conferences sponsored by FRIENDS or the Stuttering Foundation of America.

Key Informant Interviews and Focus Groups

Successful stuttering management is widely and individually defined and can mean anything from not worrying about stuttering to consistently practicing modification techniques to produce controlled fluency or easier stuttering. The development of an inclusive definition of “stuttering management” was critical to developing valid scales. In addition, as is the case for other clinical populations for which Transtheoretical measures have been developed, we also understood that the pros and cons of making any sort of change, as well one's confidence in effecting change

in difficult situations, are at the same time commonly experienced and variable among individuals. In order to capture the common themes or experiences of participants in this study, one-on-one key informant interviews and focus groups were conducted by the first author with adolescents who stutter and stuttering specialists (separately). In these discussions, the first author solicited thoughts, opinions, and feedback regarding the definition of “stuttering management” (for stage placement on the SOC scale), the pros and cons of managing stuttering (for the DB scale), and the situations in which it is challenging to manage stuttering (for the SSE scale). The leading discussion prompts were the same across all interviews and focus groups (see Table 1). There were two one-on-one key informant interviews conducted with adolescents who stutter at the annual convention of FRIENDS (both male), and two focus groups were conducted with adolescents who stutter—one at the summer residential program at the University of Iowa ($n = 12$) and the other at the Stuttering Therapy and Resources Center of Long Island ($n = 10$). There were totals of 8 females and 14 males across the two focus groups. Four stuttering specialists participated in one-on-one key informant interviews (two males and two females), and two focus groups with stuttering specialists were conducted at events hosted by the Stuttering Foundation of America ($n = 10$ in each group). All discussions were facilitated by the first author. None of the participants in the key informant interviews participated in the focus groups. We stopped recruiting adolescents who stutter and stuttering specialists for interviews and focus groups once we reached data saturation—that is, there were adequate data to develop a robust understanding of the behaviors of stuttering management as well as the pros/cons of stuttering management and challenging speaking situations. All interviews and focus groups were audio-recorded, transcribed, and qualitatively analyzed.

Qualitative Analysis of Key Informant Interview and Focus Group Transcripts

Best practices in scale development involve combining and analyzing transcripts from all stakeholders—in this case the adolescents who stutter and stuttering specialists—in one analysis (Terwee et al., 2007). To create a definition of stuttering management for the SOC scale and specific items for the DB and SSE scales, we analyzed all key informant interview and focus group transcripts using Applied Thematic Analysis. This form of qualitative analysis involved describing and characterizing both implicit and explicit themes within the textual data, without preconceived ideas about what themes and ideas lie within the text (Guest et al., 2012). In the first pass of the transcripts, we extracted meaningful units directly from the statements made by individual participants. We created initial codes each meaningful unit. Clusters of related initial codes were combined to form organizing themes. These mid-order themes began to illustrate trends in the statements within the transcripts.

Table 1. Interview prompts used in the key informant interviews and focus groups for the scale development phase.

Scale	Prompts
Stage of Change (SOC) ^a	- What does it mean when an adolescent says that they are managing stuttering?
Decisional Balance (DB)	- If an adolescent were managing their stuttering, what would they be doing?
	- What are the reasons why an adolescent might choose to manage their stuttering?
	- What are the benefits/pros of managing stuttering?
	- What are disadvantages/cons of managing stuttering?
	- How could managing stuttering benefit them?
	- How could managing stuttering benefit their family, friends, or society?
	- Could it make them feel better about themselves? How?
	- Would other people approve of them managing stuttering? Who? How would they show their approval?
Situational Self-Efficacy (SSE)	- Adolescents can run into a variety of roadblocks when they are trying to manage stuttering. What are some situations that make it hard to manage stuttering?

^aThe prompts for the SOC scale allowed us to define the behaviors of stuttering management. This definition was then presented in the SOC scale in which participants rated their readiness to achieve those target behaviors.

Related organizing themes were then grouped together to form *global themes*, which were higher order themes that reflected an overall summary or assertion represented by related clusters of organizing themes. We then created a thematic network to guide our organization of the data (Attride-Stirling, 2001), which is shown in Figure 2. It was these final global themes, then, that became our operational definition of what it means to “manage,” or “do something positive about,” stuttering.

The items for the DB and SSE scales consisted of the narrow, initial codes derived from the transcripts in which participants responded to the prompts targeting the pros and cons of stuttering management and situations that are challenging to manage stuttering. For the DB scale, we included all unique, nonoverlapping statements indicating participants' ideas about the advantages and disadvantages of managing stuttering. For the SSE scale, we included all unique, nonoverlapping examples of situations in which participants believed it would be difficult for adolescents to manage stuttering.

All analyses were conducted collaboratively by the first and second author to construct a rich interpretation of the data together (Braun & Clarke, 2019). Reliability of the coding was ensured through cognitive testing of the drafted scales, which is described in the next section.

Cognitive Testing of the Drafted Scales

The drafted scales were cognitively tested individually with nine additional adolescents who stutter who had not participated in the prior key informant interviews or focus groups. Cognitive testing is a qualitative method for increasing the probability that a particular survey item accomplishes its purpose (Willis, & Artino, 2013). To do so, the three drafted scales (SOC, DB, SSE) were completed by each adolescent individually followed by a one-on-one discussion of the instructions and items with one of two trained research associates who were licensed SLPs and appraised of the purpose of the study. At the beginning of each interview, the researcher explained that there were no right or wrong answers for any question, but rather she was interested in the

participant's understanding of what the item was asking, as well as feedback about the wording, organization, and overall clarity of the scale's directions and items.

These participants ranged in age from 13 to 20 years and were recruited from their participation in a different cohort at the summer residential therapy program for adolescents who stutter at the University of Iowa or affiliation with the Stuttering Therapy and Resources Center of Long Island. These participants included four males and five females. Five participants were participating in therapy for stuttering at the time, and four were not. The interviews lasted between 30 and 90 min depending on the amount, breadth, and depth of the participant's feedback. We stopped cognitive testing of the drafted scales once we reached saturation—that is, continued cognitive testing yielded no new suggestions for additions or deletions of items, or editorial changes.

Results

In this section, we describe the drafted SOC, DB, and SSE scales and discuss the process of cognitive testing the drafted scales. In this article, we refer to the scales as “drafted” because they had not yet undergone the process of validation through exploratory factor analysis, which is the main purpose of the second part of this study described in the companion article.

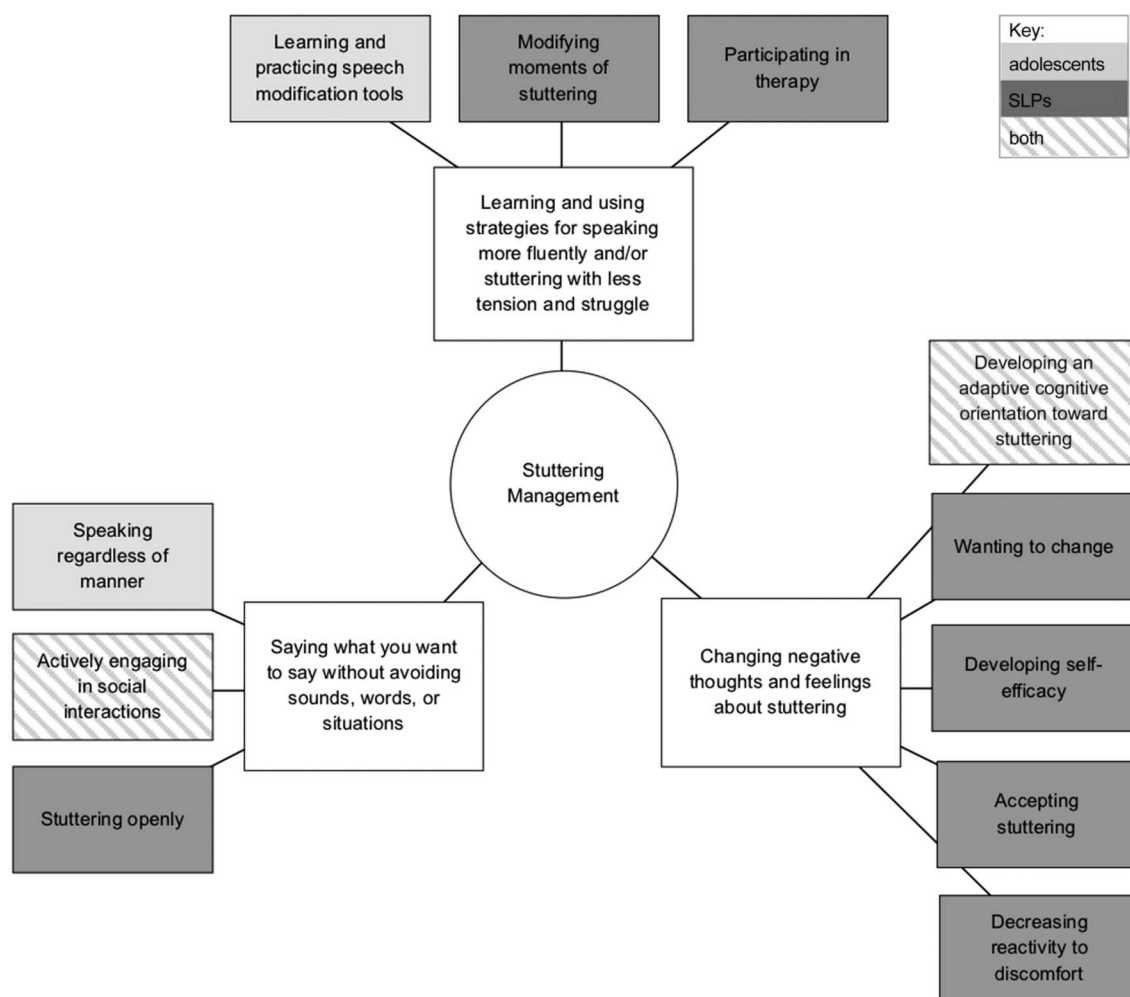
Drafted Scales

SOC Scale

Our qualitative analysis of key informant interview and focus group transcripts yielded the following three-part definition of stuttering management:

1. Learn and use speech strategies or techniques for speaking more fluently or stuttering with less tension and struggle;
2. Change negative thoughts and feelings about stuttering; and
3. Say what you want to say without avoiding sounds, words, or situations.

Figure 2. Thematic network of behaviors associated with “stuttering management” as identified by adolescents who stutter and stuttering specialists. Outermost boxes represent organizing themes, light gray boxes represent themes that emerged from adolescent interviews, dark gray boxes emerged from speech-language pathologist (SLP) interviews, and striped boxes emerged from both adolescent and SLP interviews. The second level of boxes represent global themes that comprised the three-part definition of “stuttering management.”



The first component was supported by interview statements such as “stuttering gently without avoidance or shame,” “practicing my skills not just in speech therapy but outside too,” and “I wouldn’t struggle so much when I stutter.” The second component emerged from interview statements such as “living without constant fear of uncontrolled stuttering,” “I would be going about my day and not worrying about it at all,” and “I would not be worrying that it would interfere with my life.” The third component was supported by interview statements such as “initiating conversations rather than choosing to be silent,” “I would be stuttering more openly and wouldn’t be trying to hide that I do,” and “I would just say what I wanted to say.”

This three-part definition of stuttering management outlined above, composed of the global themes derived from participants’ statements during the interviews, was the core essence of the SOC scale used to assess participants’ readiness to engage in the actions so described. The drafted

scale, with instructions, is provided in Appendix A for clinicians to use as an informal assessment and/or to foster discussion with their adolescent clients who stutter.

Because our thematic analysis yielded a definition of stuttering management with three distinct components, we wanted to examine whether adolescents who stutter would endorse different stages of readiness to change stuttering globally (when considering all three components together) as well as across the three components separately. Therefore, as shown in Appendix A, we created a stuttering-specific SOC that first instructed respondents to read the three-part definition of stuttering management and choose from one of five mutually exclusive categories that defined their stage of readiness to globally manage stuttering (i.e., to address all three components collectively). These five categories, or “stages,” were adopted from previous studies of SOC development and consisted of: (a) I’m not thinking about doing any of these things in the next 6 months (associated

with the Precontemplation stage), (b) I'm thinking about doing one or more of these things in the next 6 months (Contemplation), (c) I'm planning to do one or more of these things in the next month (Preparation), (d) I have been doing one or more of these things for less than 6 months (Action), or (e) I have been doing one or more of these things for more than 6 months (Maintenance).

After participants "staged" themselves for readiness to globally manage stuttering, they were prompted to stage themselves for each of the three separate behaviors of stuttering management (i.e., using speech strategies, changing negative thoughts and feelings, talking without avoidance). In total, the SOC scale required respondents to stage themselves four times.

DB Scale

A total of 62 items were extracted from the transcribed responses to the DB prompts used in the key informant interviews and focus groups (see Table 1 for prompts). These 62 items were used to draft the DB scale, which included 35 pros and 27 cons (see Appendix B). To complete the DB scale, respondents are asked to rate the personal importance of each of the pros and the cons of managing stuttering using a 5-point scale (1 = *not at all important*, 5 = *extremely important*). For example, respondents were asked to rate how important it would be to them if they "would feel more comfortable in social situations" (a pro of managing stuttering) and "put in a lot of practice and it might not work" (a con of managing stuttering).

SSE Scale

A total of 39 items were extracted from the transcribed responses to the SSE prompts used in the key informant interview and focus groups (see Table 1 for prompts). These 39 items were used to draft the SSE scale (see Appendix C). To complete the SSE scale, respondents are asked to rate their confidence in managing stuttering in each of the 39 situations using a 5-point Likert scale (1 = *not at all sure*, 5 = *the most sure I can be*). As an example, participants rated their confidence in managing stuttering when they were "angry," when they were "feeling really busy," and when they are "telling a joke."

Cognitive Testing of the Drafted Scales

With few exceptions, the nine participants were able to describe in their own words what particular items on each of the three drafted scales were asking or intending to elicit. The most frequent suggestions for scale editing were to (a) simplify the wording of some of the directions and prompts for completing the scales, (b) clarify wording of specific items, (c) consider items that were not included, and (d) divide one item into two separate items (e.g., an original SSE item "You are answering a question in class" was suggested to be divided into "You are called on to answer a question in class when you are not raising your hand" and "You are called on to answer a question in class

when you *are* raising your hand" [emphasis added]). All suggestions that emerged from the cognitive testing interviews were incorporated in the drafted scales before they were administered online to the national sample of adolescents who stutter.

Discussion

This article describes the first of a two-part study to create and validate Transtheoretical Model measures for adolescents' readiness to manage stuttering. Using an empirically grounded, iterative process, we interviewed key stakeholders (including 13- to 21-year-olds who stutter and stuttering specialists) to create a shared definition of stuttering management, the positive and negative consequences of managing stuttering, and situations in which adolescents find it difficult to manage stuttering. Our qualitative analyses yielded a three-part definition of stuttering management, which became the content for the SOC scale. Second, analysis of our one-on-one interviews and focus groups produced a list of 62 pros and cons for managing stuttering for the DB scale and a list of 39 situations in which adolescents find stuttering difficult to manage for the SSE scale. In the following sections, we discuss the most important findings from this work.

Successful Stuttering Management Relies on Changes in Behavior and Thinking

Through qualitative analysis of both individual key informant interviews and focus groups with key stakeholders, we constructed a multidimensional definition of what it means for adolescents to manage stuttering. This definition is consistent with what we understand to be the complex nature of stuttering and includes three components: (a) learning and using strategies to speak more fluently or stutter with less struggle, (b) changing negative thoughts and feelings about stuttering, and (c) saying what you want to say without avoidance.

This multidimensional definition of stuttering management for adolescents suggests that readiness to change can differ across the three components of stuttering management, which is a topic we explore in more detail in part two of this series. For example, an adolescent may have already been actively learning and using speech strategies at the same time that they are contemplating talking without avoiding sounds, words, or situations. If true, this finding has important implications for decisions about therapy approaches and goal selection. As an example, the SOC scale we developed in this study can be administered to an adolescent to determine which components of stuttering management they are more and less ready to change. Perhaps the client is in an early SOC (e.g., Precontemplation) for overall stuttering management and appears "noncompliant" or "unmotivated" to do something about stuttering. Responses on the SOC scale may at the same time reveal that there is a certain aspect of stuttering management (such as changing negative thoughts and feelings) to which they

feel more ready and willing to commit. At these times, it may be most helpful to shift the focus from trying to understand the client's apparent lack of motivation toward the discovery of those things they are willing to attempt in their journey toward change (Miller & Rollnick, 2012).

The Mechanism of Change for Adolescents Who Stutter Is Consistent With That for Other Populations

While definitions of successful change differ according to groups of people and the behavior of interest, individuals come to the change process at different stages of readiness to do so, and one's readiness to engage in change behaviors is influenced by thoughts, emotions, and experiences. Furthermore, regardless of whether a particular change is considered to be objectively beneficial, such as doing something to help with stuttering, there are consequences that are both subjectively positive and negative to the individual. In particular, adolescents across a range of clinical and nonclinical populations have identified "good and not-so-good" reasons to change and the degree of confidence they feel maintaining change across a range of situations in their everyday lives. This includes adolescents who smoke (Plummer et al., 2001) and engage in activities with a high injury rate (e.g., playing sports without safety equipment such as helmets, driving without seatbelts, sunbathing; Kidd et al., 2003) and teens with eating disorders (Geller et al., 2008).

For those who are unfamiliar with the internal experience of stuttering, it may be surprising that there are many cons that young people who stutter grapple with as they decide what and whether to change. The 37 pros and 25 cons speak to the internal conflict resolution that adolescents work through as they make choices about how to cope with stuttering. Clinicians can help their client who stutter resolve potential ambivalence about the change process by maximizing the importance of the pros and minimizing the extent to which the cons pose a barrier to making positive change. To do so, clinicians can provide a supportive space for their adolescent clients to discuss the potentially negative consequences of managing stuttering and use both counterquestioning and reframing to help the clients focus on the pros of change (Luterman, 2017). In addition, the questions and prompts used in motivational interviewing would be helpful here. Motivational interviewing is a counseling method that focuses on helping clients resolve ambivalence related to making a behavior change. For example, the clinician may ask the client to describe "If you could say that you were glad you did something about stuttering, what would be different?" This prompt may help the client make projections about the positive effect(s) of making changes (Behrman, 2006; Miller & Rollnick, 2012).

Our interviews also yielded a range of situations that adolescents who stutter commonly find it difficult to successfully manage stuttering. This speaks to the variability that is so central to the experience of stuttering (Constantino et al., 2016). In addition, it provides a new perspective on how to use a standard tool in the stuttering therapy repertoire—the

situational hierarchy. That is, rather than asking adolescents who stutter to rank order-specific situations with regard to how much stuttering, anxiety, or general difficulty they present, it might be more helpful to consider situations along a hierarchy of *confidence* in their ability to attempt to do something about stuttering in those situations. In this way, confidence in one's ability to *attempt* action in difficult situations, rather than *successful* action, takes center stage. This shift in thinking opens up fruitful avenues for discussing how to build confidence in the adolescent's ability to stay the course in the face of disappointment, as opposed to focusing solely on their confidence in attaining the end goal.

Limitations and Future Directions

The primary limitation of this study was that our adolescent key informant and focus group participants were in therapy, had recently received therapy, or were connected in some way to stuttering support. Although ideal, it is difficult to recruit individuals who stutter from the general population without referrals from SLPs or through support organizations. While less a problem for the purposes of this study, the difficulty in gaining access to adolescents who stutter who are not in, or have not received therapy, is also a limitation for the external validation process described in the second part of this study.

In the second article of this two-part series, we describe the first step in validating the SOC, DB, and SSE scales with a large national sample of adolescents who stutter. As discussed in that article, through exploratory factor analysis, we were able to distill the number of components on both the DB and SSE scales down to a smaller number of discrete items. In addition, we were able to show preliminary validity of the three scales by examining their functional relationship with each other. Taken together, the results from this study, along with those from part II, provide the foundation for developing stage-matched therapy strategies—or processes—to facilitate movement toward active engagement in therapy for adolescents who stutter.

Conclusions

This study represents the first step in applying the Transtheoretical Model to the population of adolescents who stutter. According to the model, readiness for making intentional behavior change—actively engaging in the use of strategies to change behavior or attain goals—occurs as individuals experience cognitive shifts that align with five distinct temporal stages of change. We propose that such overt and active engagement in the change process is required to successfully manage stuttering. Together with the validation process described in our companion article, we provide evidence that the cognitive mechanisms for change readiness observed in other clinical populations apply to adolescents who stutter as well. Furthermore, we speculate that these findings will be replicated for the population of adults who stutter. Finally, this work can provide the foundation for the further

development of cognitive assessment tools and therapy strategies that can be individually tailored to people who stutter and will facilitate durable changes in stuttering management.

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Appendix A

Draft Stages of Change (SOC) Scale

How Ready Are You to Do Something About Stuttering?

The best way for a teen who stutters to do something to help with stuttering is to:

1. Learn and use speech strategies or techniques for speaking more fluently and/or stuttering with less tension and struggle;
2. Change negative thoughts and feelings about stuttering; and
3. Say what you want to say without avoiding sounds, words, or situations.

It's important to pay attention to all three of these things because just focusing on one may not be enough to make long-lasting changes. For any of these things to become automatic, you may need help and regular practice for up to one year or more.

Thinking about the three things above all together (learning and using speech strategies, changing negative thoughts, and speaking without avoiding), how ready are you right now to do something about your stuttering? Place a check mark in the box next to the sentence that best describes you right now.

☐	I am not thinking about doing these things in the next 6 months.
☐	I am thinking about doing these things in the next 6 months.
☐	I am planning to do these things in the next month.
☐	I have been doing these things for less than 6 months.
☐	I have been doing these things for more than 6 months.

Thinking of these three things separately, one by one...

1. How ready are you right now to get help to learn and use speech techniques for speaking more fluently or stuttering with less tension and struggle?

☐	I am not thinking about doing this in the next 6 months.
☐	I am thinking about doing this in the next 6 months.
☐	I am planning to do this in the next month.
☐	I have been doing this for less than 6 months.
☐	I have been doing this for more than 6 months.

2. How ready are you right now to change your negative thoughts and feelings about stuttering?

☐	I am not thinking about doing this in the next 6 months.
☐	I am thinking about doing this in the next 6 months.
☐	I am planning to do this in the next month.
☐	I have been doing this for less than 6 months.
☐	I have been doing this for more than 6 months.

3. How ready are you right now to say what you want to say without avoiding sounds, words, or situations?

☐	I am not thinking about doing this in the next 6 months.
☐	I am thinking about doing this in the next 6 months.
☐	I am planning to do this in the next month.
☐	I have been doing this for less than 6 months.
☐	I have been doing this for more than 6 months.

Appendix B (p. 1 of 2)

Draft Decisional Balance (DB) Scale

Please tell us how important each of the following things are to you when deciding whether or not to do something about your stuttering.

Your choices:

- 1 = Not at all important to me
- 2 = A little important to me
- 3 = Average importance to me
- 4 = Very important to me
- 5 = The most important to me

If the statement does not apply to you, you should respond "1 = Not at all important"

When thinking about changing your stuttering, how important is it to you if...?

1. you could say what you want to say, when you want to say it, and how you want to say it
2. you would have to work and practice to change your speech
3. you would feel like a successful communicator
4. you wouldn't feel like stuttering runs your life
5. you would participate more in class and group activities
6. you would be able to socialize more with friends and family
7. you would put in a lot of hard work to change the way you speak
8. you would find it difficult to make a change
9. you would participate more in therapy
10. you would be able to be more active in support groups
11. you would worry less about talking
12. you might put in a lot of practice and it might not work
13. you would feel like a failure if you are not able to make the changes
14. you would feel less anxious
15. you would feel more comfortable in social situations
16. you would feel like you fit in more with your friends
17. you would not know what therapy was going to be like
18. your parents and teachers would expect you to talk more if you don't stutter
19. you might not be able to change the way you speak
20. you would feel more comfortable meeting new people
21. other people would disapprove of you trying to change the way you speak
22. you could participate more actively in your community
23. you would feel more confident about yourself
24. talking to people would be easier
25. you would feel better about yourself
26. people would know that you are doing something about your stuttering, and they would think that your stuttering bothers you
27. your speech would be easier to understand

Appendix B (p. 2 of 2)

Draft Decisional Balance (DB) Scale

28. you wouldn't be afraid to talk
 29. you could just be yourself
 30. you would feel more in control of yourself
 31. you might not change permanently
 32. you feel like you let your family down because you're not successful at changing your speech
 33. you would lose part of who you are if you stuttered differently
 34. it would be easier to have a boyfriend or girlfriend
 35. you might work hard at changing, but it might not be good enough
 36. you wouldn't feel like yourself if you stuttered differently
 37. you would feel calmer
 38. you would talk more
 39. people would treat you just like any other person
 40. you would feel angry that you have to make a change
 41. you would have to focus on both what you want to say and how to say it
 42. managing your stuttering was really stressful
 43. you would speak more fluently
 44. you would be able to connect better with other people
 45. you would have more friends
 46. you would feel a sense of accomplishment
 47. your parents would worry less about you
 48. you would have more choices for careers and activities in your life
 49. your speech would sound weird and unnatural to other people
 50. your speech would sound and feel weird and unnatural to you
 51. you would be better able to help others learn about stuttering
 52. you would feel more in control of your speech
 53. you would be more of a leader
 54. your life might not change even if you are able to change your speech
 55. it would be easier to do things you want to do
 56. people would make fun of you for trying to change the way you speak
 57. you would be calling attention to yourself if you changed the way you talk
 58. you would have to manage your stuttering for the rest of your life
 59. your friends might not like that your speech is changing
 60. you may miss out on other activities to spend time working on your stuttering
 61. you would be disappointed in yourself if you change the way you speak just to make other people happy
 62. you wouldn't feel like your stuttering limits your choices of what you do in your life
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Appendix C (p. 1 of 2)

Draft Situational Self-Efficacy (SSE) Scale

Please tell us how sure you are that you could do something about your stuttering in the following situations.

Your choices are:

- 1 = Not at all sure
- 2 = A little sure
- 3 = Moderately sure
- 4 = Very sure
- 5 = The most sure I could be

If the statement does not APPLY to you, you should respond "1 = Not at all sure."

How sure are you that you can do something about stuttering when...?

1. you are giving an oral presentation in your class at school
2. you are reading out loud in class
3. you are being interviewed for a job
4. you are called on to answer a question in class when you are not raising your hand
5. you are called on in class when you are raising your hand
6. you are meeting new people
7. you know the people you are with sometimes tease you about stuttering
8. you are being pressured or rushed to say something
9. it is a hard talking day
10. you are feeling nervous
11. you are feeling tired
12. you are feeling stressed out
13. you are around people who do not know that you stutter
14. you think your friend doesn't understand stuttering
15. you think your family doesn't understand your stuttering
16. you have to stand up for yourself
17. you are afraid you are going to stutter
18. you are really busy
19. you are feeling distracted
20. you don't have enough time to practice the things you do in therapy
21. you are talking to a person you have a crush on
22. you are talking in a group of your friends
23. you are talking in front of a group of people
24. you are talking to a teacher
25. you are talking to a coach
26. you are talking to a boss
27. you are talking on FaceTime or Skype
28. you are telling a joke
29. you are telling a story

Appendix C (p. 2 of 2)

Draft Situational Self-Efficacy (SSE) Scale

- 30. you are introducing yourself
 - 31. you are angry
 - 32. you are having an argument
 - 33. you are answering the phone when someone calls you
 - 34. you are calling someone on the phone
 - 35. you are talking with your speech therapist
 - 36. you are ordering in a restaurant
 - 37. you are ordering food at a fast food restaurant or at a drive-thru
 - 38. you are being accused of doing something wrong
 - 39. you are talking to a police officer
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