**Do not cite without authors' permission **

Beliefs and attitudes of children and adults who stutter regarding their ability to overcome stuttering

Kenneth S. Melnick, Ph.D., CCC-SLP, BRS-FD¹ & Merlo, SLP²

¹Communication Sciences & Disorders Department, Worcester State University, Worcester, MA 01602 USA

Introduction

- Stuttering therapy often requires considerable attention to be spent addressing the affective and cognitive components of the disorder (Manning, 2010).
- Assisting children and adults who stutter to understand and help themselves can be quite challenging, especially when some have significantly more negative beliefs and attitudes about their ability to communicate than others.
- According to Deiner & Dweck (1978, 1980), Elliott & Dweck (1988), & Nussbaum & Dweck (2008), poor problem-solving in children may relate to a perception that they are unable to alter future performance due to a sense of diminished ability ("fixed" mindset).
- Conversely, other children perceive that problems can be surmounted and solved on their own ("growth" mindset).
- A variety of strategies have been used to help identify fixed and growth mindset in children who
 do not stutter, for example, the Intellectual Achievement Responsibility Scale by Crandall,
 Katkovsky, & Crandall (1965).
- While a number of scales have been developed to assess attitude towards communication of children who stutter (e.g., Cooper & Cooper, 2003; De Nil & Brutten, 1991; Guitar & Grims, 1977; Riley, 1981), none have been able to assess one's perceived ability to overcome stuttering.
- Other scales, designed to assess attitude towards communication in older children through adults as well as thoughts and beliefs of adults who stutter (Andrews & Cutler, 1991; St Clare, Menzies, Onslow, Packman Thompson, & Block, 2009), similarly do not assess self-perceived ability to overcome stuttering (St Clare et al., 2009.)
- While questionnaires have been developed to assess the effects of internal versus external locus
 of control on long term therapy outcome in adults who stutter (Craig, Franklin, & Andrews,
 1984), results have been inconsistent (De Nil & Kroll, 1995; Blomgren, Roy, Callister, & Merrill,
 2006).

Research Questions:

- (1) How will fixed and growth mindset be related to attitude towards communication in children and adults?
- (2) How will stuttering severity be related to fixed and growth mindset, attitude towards communication, and age?

Methods

Participants

 Participants were eleven, monolingual, Standard American English speaking males and females who exhibit stuttering (ages 8-adult). They were recruited from area public schools, National Stuttering Association Groups, and speech-language-hearing clinics.

² The Brazilian Fluency Institute, R. do Rocio, 423, conj. 510, Vila Olimpia, Sao Paulo, SP, 04552-000, Brazil

All participants had to 1) exhibit three or more within-word disfluencies (sound/syllable repetitions, sound prolongations or within-word pauses) and/or monosyllabic whole-word repetitions per 100 words of conversational speech (Bloodstein, 1995), based on a 300-word sample; 2) report either by themselves (for adults) or others (for children) that they are person who stutters; and 3) score at least a "mild" on the Stuttering Severity Instrument-4 (SSI-4) (Riley, 2009).

Procedures

- All participants were administered the Stuttering Severity Instrument -4 (Riley, 2009), either
 the Children's Attitude about Talking Revised (De Nil & Brutten, 1991) or Communication
 Attitude Inventory (Andrews & Cutler, 1974), depending on age, and the Mindset Scale for
 Stuttering. Because the latter scale was created for this study and has never been administered
 before, it is based on previous studies about the influence of mindset on how people deal with
 difficulties (Dweck & Leggett, 1988; Nussbaum & Dweck, 2008). The scale intends to assess
 fixed and growth mindsets.
- The Mindset Scale for Stuttering scale was administered on a computer using Praat software (Boersma & Weenink, 1992-2010). A copy of the questions can be found online on the ASHA 2010 Convention website. It should be noted that questions were randomized for each participant.

Results

This study has been approved by the Human Subjects Review Board at Worcester State University, National Stuttering Association, and Worcester Public Schools.

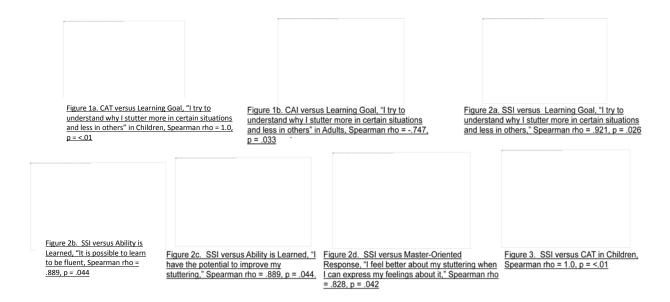
Research Question #1

- No significant correlations for any of the fifteen fixed mindset statements were observed between attitude towards communication ability for either children (<u>p</u> –value range, .33-1.0) or adults (<u>p</u>-value range, .32-.94).
- Of the sixteen growth mindset statements, one correlation between that and attitude towards communication ability in children and adults was significant. Specifically, the CAT (children) and CAI (adults) were significantly correlated with the learning goal, "I try to understand why I stutter more in certain situations and less in others," (Spearman rho = 1.0, \underline{p} < .01 for children and Spearman rho = -.747, \underline{p} = .033 for adults; see figures 1a & 1b, respectively).

Research Question #2

- Of the fifteen fixed mindset statements, no significant correlations were observed between the SSI and fixed mindset for either school-age children (i.e., ages 8-17) (<u>p</u>-value range, .102-.833) or adults (i.e., 18 years and older) (<u>p</u>-value range, .072-.954).
- Of the sixteen growth mindset statements for children, three correlations between SSI and growth mindset were significant. Specifically, the correlation between the learning goal, "I try to understand why I stutter more in certain situations and less in others" and SSI was significant, Spearman rho = .921; \underline{p} = .026 (see figure 2a). In addition, the ability is learned goal, "it is possible to learn to be fluent" and, "I have the potential to improve my stuttering" and the SSI were significant, Spearman rho = .889, \underline{p} = .044 for both (see figure 2b and 2c, respectively).
- Out of sixteen statements for growth mindset for adults, one was significant between the SSI and growth mindset. Specifically, the correlation between SSI and the master-oriented response, "I feel better about my stuttering when I can express my feelings about it" was significant, Spearman rho = .828, p = .042 (see figure 2d).

- A significant correlation was found between SSI and CAT in children (unexpected), Spearman rho = 1.0, p <.01, see figure 3. Non-significant correlations were observed between SSI and CAI for adults or SSI and age for everyone.
- No significant correlations were observed between SSI and age.



Discussion

It should be noted that p-values were calculated assuming independence of multiple Spearmen rho tests. In future work, as the sample size increases, these relationships will be reconsidered taking into account the effect of multiple tests.

- Although Deiner & Dweck (1980) speculated about the mentality of growth mindset in children, it would seem that adults who showed a more positive attitude were more likely to have a stronger prediction of success.
- While some statements for stuttering severity and mindset scale resulted in significant positive correlations, many were non-significant, a finding that seems to support some (Conture, 2001) who believe that stuttering severity is not related to age (c.f., Guitar, 2006); thus, stuttering severity would not be related either fixed or growth mindset.
- According to Elliott & Dweck (1988) & Nussbaum & Dweck (2008), children's perceptions about their ability to solve problems are not necessarily unchangeable. It is possible to alter children's perceptions from a more fixed to a more growth mindset.
- If we discover, in future studies, that negative attitudes are indeed significantly related to a
 fixed mindset, it may be possible to alter this to a more growth mindset through counseling,
 enabling children and adults to more effectively manage their stuttering.

References

- Andrews, G. & Cutler, J. (1974). Stuttering therapy: The relationship between changes in symptom level and attitudes. Journal of Speech and Hearing Disorders, 39(3), 312-319. (S-24).
- Blomgren, M., Roy, N., Callister, T., & Merrill, R.M. (2006). Intensive stuttering modification therapy: A multidimensional assessment of treatment outcomes. <u>Journal of Speech Language Hearing Research</u>, 48, 509-523.
- Boersma, P. & Weenink, D. (1992-2010). Praat: Doing phonetics by computer. www.praat.org. Conture (2001). <u>Stuttering: Its nature, diagnosis and treatment</u>. Boston: Allyn & Bacon.
- Cooper, E.B., & Cooper, C.S. (2003). <u>Cooper Personalized Fluency Control Therapy for Children –</u> Clinician's Manual (3rd ed.). Austin, TX: PRO-ED.
- Craig, A., Franklin, J., & Andrews, G. (1984). Locus of Control of Behavior Scale. <u>British Journal of Medical Psychology</u>, 57, 173-180.
- Crandall, V.C., Katkovsky, W., & Crandall, V.J. (1965). Children's beliefs in their own control of reinforcements in intellectual-academic situations. Child Development, 36(1), 91-109.
- De Nil, L.F., & Brutten, G.J. (1991). Speech-associated attitudes of stuttering and nonstuttering children. Journal of Speech and Hearing Research, 34, 60-66.
- De Nil, L.F., & Kroll, R.M. (1995). Relationship between locus of control and long-term stuttering treatment in adult stutterers. <u>Journal of Fluency Disorders</u>, <u>20</u>, 345-364.
- Diener, C.I., & Dweck, C.S. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. <u>Journal of Personality and Social Psychology</u>, 36(5), 451-462.
- Diener, C.I., & Dweck, C.S. (1980). An analysis of learned helplessness: II. The process of success. Journal of Personality and Social Psychology, 39(5), 940-952.
- Dweck, C. S. & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. Psychological Review 95 (2), p. 256-273.
- Guitar (2006). <u>Stuttering: An integrated approach to its nature and treatment</u>. Lippincott, William, & Wilkins: Baltimore, MD.
- Guitar, B., & Grims, S. (1977). Developing a scale to assess communication attitudes in children who stutter. Presentation to the Annual Convention of the American Speech-Language-Hearing Association, Atlanta, GA.
- Manning, W.H. (2010). <u>Clinical decision making in fluency disorders</u> (3rd ed.). Clifton Park, NY: Delmar, Cengage Learning.
- Nussbaum, A.D., & Dweck, C.S. (2008). Defensiveness versus remediation: Self-theories and modes of self-esteem maintenance. <u>Personality and Social Psychology Bulletin</u>, <u>34</u>, 599-612.
- Riley, G.D. (1981). The stuttering prediction inventory for young children. Austin, TX: PRO-ED.
- Riley (2009) Stuttering Severity Instrument 4 (4th ed.). PRO-ED: Austin, TX.
- St Clare, T., Menzies, R.G., Onslow, M., Packman, A., Thompson, R., & Block, S. (2009). Unhelpful thoughts and beliefs linked to social anxiety in stuttering: Development of a measure.

 International Journal of Language and Communication Disorders, 3, 338-351.

Appendix A. Mindset Scale for Stuttering. Participant responded to all questions based on Likert Scale. Example of types of responses varied for questions 1-4 (see below); however, questions 5-35 were of a similar format, i.e., (1) = 'strongly disagree, (2) = Disagree, (3) = neither disagree nor agree, (4) = Agree, and (5) = strongly Agree. All questions were randomized for each participant.

Preliminary Questions

- 1) In your opinion, how severe is your stuttering [(1) mild,(2) moderate, (3)severe]?
- 2) How much do you have to pay attention to your speech to keep your fluency [(1) none, or (2) I must be fully concentrated]?
- 3) How fast would you judge your rate of speech [(1) very slow, (2) slow, (3) average, (4) fast, (5) very fast)]
- 4) What is your level of psychological suffering with regard to stuttering [(1) mild, (2) moderate, (3) severe]?

Helpless response (6 statements)

- 5) If I were a good communicator, I would not stutter
- 6) In certain situations, I may not stutter, but if I did even a little, I would feel bad.
- 7) I do not like situations that I stutter more and I try to avoid them as much as I can.
- 8) I become very anxious when I stutter because I cannot control it.
- 9) If I stutter more than expected in certain situations, it is very likely that I will stutter even more the next time that I am in the same situation.
- 10) I think stuttering makes me inferior.

Performance goals (4 statements)

- 11) I would like to be totally cured from stuttering.
- 12) I must show that I do not stutter.
- 13) I have tricks to hide my stuttering so that I may appear more fluent.
- 14) If I have to try and not stutter, it is because I do not have the capacity to be fluent.

Ability is innate (5 statements)

- 15) Fluency: either you're born with it or you're not.
- 16) People are destined to either speak fluently or to stutter; there's nothing you can do to change this
- 17) Individuals who stutter may be able to learn how to manage their stuttering, but they will always have difficulties.
- 18) If I stutter, it's because that's just the way I talk
- 19) People have said that I will always stutter, and they're right.

Mastery-oriented response (8 statements)

- 20) I try to use my strategies to see how well they will work in improving my stuttering.
- 21) If I am able to be fluent in some situations, I believe I will be able to be fluent in others, too.
- 22) I seek out difficult speaking situations so that I may overcome my stuttering.
- 23) I feel better about my stuttering when I can express my feelings about it.
- 24) I feel myself encouraged to go ahead, even if I stutter.
- 25) As I face difficult speaking situations, I get more and more fluent.
- 26) I can be more fluent when I use my strategies.
- 27) I think stuttering is an obstacle to be surmounted.

Learning goals (4 statements)

- 28) I continually try and learn more about stuttering so that I may better understand my problem.
- 29) I try to understand why I stutter more in certain situations and less in others.
- 30) Every improvement I make in my stuttering is important, regardless of what it might be.
- 31) I feel good about myself when I try to improve my stuttering.

Ability is learned (4 statements)

- 32) It is possible to learn to be fluent.
- 33) I have the potential to improve my stuttering.
- 34) To have good fluency, it is necessary to learn strategies and to use them.
- 35) It is possible that a person who stutters can improve his/her fluency considerably.