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Facilitating Transfer and Maintenance in School-aged Children Who Stutter: A Guidebook for Clinicians

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Facilitating Transfer and Maintenance in School-aged Children Who Stutter: A Guidebook for Clinicians

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Dedication

This report is dedicated to my two school-aged clients who stutter. I thank them for touching my life and allowing me to be a part of their journey. They are the inspiration behind this report and the reason I feel so fortunate to be in this profession.

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I would like to express my deep gratitude to my exceptional supervisors, Courtney Byrd and Elizabeth Hampton, for their continuous support and guidance. Throughout my graduate career, these individuals have inspired me, motivated me, and guided me to grow as a person and clinician. I feel extremely fortunate to have witnessed their unwavering dedication and support to the stuttering community and to their students. I would also like to thank my family for the love and encouragement they have provided me.

Abstract

Facilitating Transfer and Maintenance in School-aged Children Who Stutter: A Guidebook for Clinicians

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This report was developed to: a) enhance the clinician's understanding of transfer and maintenance as it relates to stuttering, b) explore the unique challenges that face the school-aged population, c) examine research outside of the field that may be of benefit for school-aged stuttering clients, and d) provide the clinician with examples and activities that will facilitate the transfer and maintenance of stuttering treatment. The report will include a brief discussion of transfer and maintenance. The remainder of the report will focus on facilitating transfer and maintenance by increasing motivation, self-efficacy, realistic goal setting, and self-regulation.

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Introduction

A review of the literature reveals a plethora of research and resources pertaining to the treatment of stuttering, but very little regarding transfer and maintenance. The term "transfer" refers to the application of skills learned during therapy to new situations outside of therapy. Transferring learned skills requires active, conscious practice and is much more difficult than it may seem. The term "maintenance" refers to the ability to continue or keep up with the progress that has been made even after the termination of therapy. Clinicians often find that children master strategies within a treatment session, but hesitate, forget, or feel unable to use techniques in their everyday lives. It is crucial that the clinician actively plans for and facilitates transfer and maintenance as a part of stuttering treatment for any child.

Ensuring that the child can apply his/her fluency strategies outside of the therapy room in new contexts is one of the most important aspects of treatment. However, this cross environment application is also one of the most challenging aspects for both the clinician and the client. Facilitating transfer and maintenance is difficult for the clinician for several reasons. First, there is little evidence-based research on how to effectively plan and facilitate transfer and maintenance of stuttering therapy, especially with school-aged children. The focus of most research studies is on treatment efficacy and not on the transfer or maintenance of treatment gains. Even as the number of treatment studies with this population increases, none have been designed to actually test specific transfer and maintenance strategies (Finn, 2003). Second, there are numerous programs and books to use during treatment, but very few educational resources and/or materials specifically targeting transfer and maintenance. Transfer and maintenance is often considered the last step of a treatment program, and does not receive the amount of focus that it should.

Lastly, in the area of transfer and maintenance, the client becomes responsible. Although the clinician should still be involved in facilitating transfer, transfer relies heavily on the motivation, engagement, and regulation of the client. Successful transfer and maintenance is difficult for the client because it requires a clear understanding of the techniques, a deliberate and consistent effort to practice strategies in new situations, a sufficient feeling of success, and the conscious decision to speak in new, unnatural ways rather than the client's natural mode of communication. Because of their young age and maturity level, the school-aged population presents unique challenges when it comes to transfer and maintenance. They may be lacking the more advanced cognitive and emotional abilities needed.

The purpose of this report is to break transfer and maintenance into key components: motivation, self-efficacy, goal setting, and self-regulation. These areas will be examined with respect to the school-aged child and the unique challenges of their young age. Drawing on evidence from outside the field of speech-language pathology, methods for facilitating these components of transfer and maintenance will be reviewed and considered. This evidence will be applied to findings from the area of stuttering, followed by a discussion of clinical implications including specific activity ideas and handouts to promote transfer and maintenance.

Motivation

There is evidence within the stuttering literature that the client's motivation is critical to the success of transfer and long-term maintenance (Irani et. al, 2012; Plexico et. al, 2005). It is clear that motivation plays a role, but there is a lack of information on *how* to increase or foster personal motivation in people who stutter if it is not already present. Furthermore, the research related to motivation has largely been limited to adults who stutter. More research is needed related to school age children, as the factors related to motivation appear to be distinct from that of adults. For example, school age children may need more encouragement and facilitation to achieve true internal motivation. Given the paucity of data in the stuttering literature, evidence from psychology, sociology, and economics may be of help when applied to school-aged children who stutter.

EXTRINSIC MOTIVATION VS. INTRINSIC MOTIVATION

The notion of providing incentives and rewards is controversial. In the field of economics, there is evidence that incentives promote effort and performance (Bénabou & Tirole, 2003). Yet, in the field of psychology, rewards are argued to actually impair performance in the long run (Deci, Koestner, & Ryan, 1999). The controversy comes down to the difference between extrinsic versus intrinsic motivation. Extrinsic motivation is contingent on external rewards, while intrinsic motivation is based on an individual's inherent desire to perform the task for its own sake. Although extrinsic motivation based on rewards may improve performance and compliance at the beginning, there is evidence that it may not be helpful in the long run.

Kohn (1993) surveyed the use of rewards in areas such as weight loss, smoking cessation, and increased seat belt use. In each of these programs, one group was offered

rewards but another group was not. Individuals in the "reward" group exhibited increased compliance at the start of treatment, but worse compliance in the long run. According to Bénabou and Tirole (2003), rewards may have an initial, limited positive impact on engagement but a negative impact on persistence. Incentive schemes may undermine either an individual's confidence in his/her abilities or the value of the task. If the goal is transfer and long-term maintenance, then the main focus should be on intrinsic motivation rather than extrinsic motivation.

According to Elliot and Harackiewicz (1994), competence valuation and task involvement may increase an individual's intrinsic motivation. Competence valuation refers to the degree to which an individual cares about doing well at a certain activity. Task involvement represents the degree to which an individual focuses on and is interested in an activity. Similarly, Bereby-Meyer and Kaplan (2005) cite research that individuals need to perceive the outcome of using a strategy as attainable and desired, and need to perceive themselves as capable in using the strategy.

ACHIEVEMENT AND GOAL ORIENTATION

According to achievement goal theory, people have different purposes when engaging in a task (Bereby-Meyer & Kaplan, 2005; Ames, 1992). Two purposes for engaging in a task include mastery and performance. Mastery goals focus on the purpose of learning, mastering skills, and improving competence (Elliot & Harackiewicz, 1994; Bereby-Meyer & Kaplan, 2005). Performance goals focus on demonstration of one's ability, typically in comparison to a norm.

Elliot and Harackiewicz (1994) found that mastery-focused goals had a more positive effect on intrinsic motivation than performance-focused goals. In their study, subjects were asked to play an enjoyable pinball game. Children were split into a

performance goal condition and a mastery goal condition. Subjects in both conditions were provided with identical target objectives (in terms of a numerical point value) but the goals differed in how competent performance was defined. In the performance goal condition, the numerical standards were described as the 65th percentile scores, emphasizing a normative comparison. Children in the mastery goal condition were told, in qualitative terms, that the numerical goal was a 'moderately challenging' goal that would aid skill development and allow them to gauge their progress.

Results suggest that mastery goals were beneficial because the standards seemed attainable and the emphasis on skill development appeared to make the task more interesting to the children. In contrast, performance goals seemed to reduce interest in the game and decreased self-reported levels of enjoyment. The children in the performance condition also reported more thoughts about competence and performance while playing the game. The authors reasoned that relative performance goals can create feelings of anxiety, which may disrupt task involvement and make an individual feel incompetent. According to Elliot (1999), worry, anxiety, and attention to non-task information like social perceptions can divert attention from the task and limit a students' cognitive resources.

PRIMING GOAL ORIENTATION

Bereby-Meyer and Kaplan (2005) found that children who learn a strategy under a mastery condition are more likely to transfer the strategy to new situations. They also discovered that educators and clinicians can impact whether a child adopts a mastery approach or performance approach. In their study, second grade and sixth grade children were randomly assigned to one of three conditions: mastery goals, performance-approach goals, and control.

Children in the mastery goals condition were primed for this goal orientation by being told: a) they would play a game that will teach them things, will improve their ability and skills, that these skills are important in school, and that they can learn from their mistakes in order to improve their ability (instructions taken from Dweck and Leggett, 1988). In the performance-approach goals condition, children were told: a) the aim of the game is to compare the ability of different children playing the game, b) most children who played failed to reach a solution, c) a few children were very good and they had the opportunity to show that they were good in playing the game. The control group received no priming instructions.

In this experiment, transfer was defined as solving a new task by applying the problem-solving skill taught in the first task. The authors found that sixth graders were more likely to transfer the strategy than the second graders, which is likely due to increased cognitive capacities that come with age. However, the children in the mastery condition had the highest rate of transfer, regardless of age, when compared to performance condition or control group. Bereby-Meyer and Kaplan (2005) posit that focusing on social comparison (as in the performance condition) may divert attention away from the task itself and instead raise anxiety or ruminative thoughts about not performing to a certain standard, which can lower performance. Thus, even in the presence of high mastery goals, the existence of performance goals may interfere.

CREATING A MOTIVATIONAL CLIMATE

A similar concept is discussed in sports psychology. Within this field, researchers hypothesize that the motivational climate of practice sessions can influence the individual's goal orientation, which may be task-oriented or ego-oriented (Wells et al., 2006). In a motivational climate that is focused on performance, the overall objective is

to win. Performance motivation is therefore associated with high ego-orientation; an individual evaluates his/her own competence through normative comparisons with other people. In a mastery-oriented climate, the objective is skill development. Mastery-oriented climates are linked to high task-orientation, meaning that competence is determined through personal progression. For example, a child with high task-orientation would feel successful if he/she developed specific skills required to succeed in a sport (e.g., dribbling, shooting, playing defense) even if he/she does not win a game or is not named most valuable player.

CLINICAL IMPLICATIONS

Priming

The findings from educational psychology and sports psychology suggest that an educator or clinician is capable of creating an environment that influences a child's personal goal orientation. By priming the child and the educational climate, instructors can lead children to be more motivated by personal skill development and progress. This form of motivation is preferred to an all-or-nothing "winning" mentality, or one that depends on comparison to other speakers.

Through dialogue, clinicians should explicitly prime children before and after teaching a skill and assigning transfer activities. Emphasis should be on personal skill development over percent syllables stuttered or other measures of fluency. If children focus and reflect on their skill development as opposed to disfluency frequency, they will be able to see more progress and be more inclined to continue improving and practicing.

Rating scales

For school-aged children who stutter, "winning" would be analogous to achieving complete fluency or sounding like a typical speaker. For this age group, it can be

difficult to see progress in the abstract form of personal skill development. Children will likely measure success and achievement in black and white terms: stuttering versus not stuttering. Clinicians may take for granted the fact that this age group does not yet have much experience with gradation.

Immediately after the completion of a practice activity, the clinician can provide a handout with a list of goals (phrased in terms of personal/skill development) and a rating scale. The rating scale will be used to allow children to think back on their goals and the progress they have made. The scale should have more than simply "yes/no" or "good/bad" in order to help the child get accustomed to gradations. After the child completes the rating scale, a portion of the session should be reserved for discussing progress in terms of gradual development. The clinician should highlight and prompt the child to think about the ways that progress has been shown, conditioning the child to start viewing success and achievement from this alternative perspective.

Most rating scales are based on a number line, with the scale ranging from low to high in a particular area (e.g., comfort level or accuracy). Children may choose numbers based on what seems realistic or acceptable, rather than what they truly feel. One suggestion for eliminating this potential confound is to create a rating scale without numbers. Without the number line, a child may be forced to open up more and truly examine his/her progress in qualitative terms. Arbitrary symbols, such as shapes, may be associated with different descriptions on the rating scale. To create a highly personalized rating scale, the child can create the descriptors with words that are meaningful and relatable. For example, one area of the rating scale might say, "I understand the technique but forgot to use it during this activity because I was too worried about stuttering" and another might say, "I realized that I don't really understand what I am supposed to be

doing during this technique." See Appendix A for a blank rating scale and Appendix B for an example of a personalized rating scale developed by child and clinician.

Charting Homework

One way to continue priming children even when they are away from the clinic is to incorporate mastery-oriented questions in the assigned homework. The homework should have a direct and simple way of tracking progress and should always allow the child to feel a certain level of success. Since the goal is to facilitate and promote transfer, the homework should also guide the child to feeling intrinsically motivated to attempt new situations while using fluency strategies.

The clinician can provide the client with goal-related homework to keep track of his or her individual goals and accomplishments in between sessions (Digelidis, et al., 2003). This may be as simple as drawing a star in the column every time they use a strategy in a new situation, or listing out the new situations in detail. Clinicians should not have children track their fluency; instead, clinicians should have them track the times they practice using their strategies in real situations. This discussion will move the focus from fluency as the way of "winning", and instead focus on time, effort, and practice. See Appendix C for an example charting homework.

Self-efficacy

Defining Self-Efficacy

There is evidence that self-efficacy plays a role in a child's ability and effort to transfer and maintain treatment gains. The term self-efficacy refers to one's personal judgment of his/her capabilities in a specific situation that may have ambiguous, unpredictable, and stressful features. The level of self-efficacy influences a child's choice of activities, amount of effort expended, perseverance, and task accomplishments. When applied to a clinical setting, a child with high self-efficacy may work harder, practice more, and believe that he/she can accomplish higher goals. On the other hand, a child who repeatedly encounters difficulties or feels unsuccessful can have low levels of self-efficacy and higher self-doubt (Schunk, 1985). This could manifest in low effort, less practice, lower skill levels, and a lack of motivation to try and succeed. Therefore, it is important for a clinician to address self-efficacy and incorporate methods to increase a child's level of self-efficacy.

Using Self-Set Goals to Increase Self-Efficacy

According to research from the field of neuroscience and special education (Scarborough et. al, 2010; Schunk, 1985), one way to increase a child's level of self-efficacy is to include them in the process of establishing goals. Goal setting promotes self-efficacy while also empowering the client and enhancing meaningfulness (Scarborough et. al, 2010). An added bonus of including children in the goal setting process is that it may increase intrinsic motivation.

In a study regarding goal setting, Schunk (1985) found that children who participated in setting their own goals ended up with higher levels of self-efficacy and skill. He studied this phenomenon in a population of 30 sixth graders (average 13.5 years

old) with learning disabilities in math. Children in the study received subtraction training—both instruction and practice opportunities—over several sessions. There were three groups for the experiment. The "self-set group" consisted of children who set their own proximal performance goals for each session. The "assigned-group" consisted of children who had proximal goals assigned. The third group had no goals given to them at the beginning of the session. After establishing the goal for the day, the two goal-oriented groups then judged their expectancy of goal attainment on a self-efficacy scale on a scale of 10-100. The group without set goals judged their expectancy of "doing your best".

The self-set group demonstrated significantly higher self-efficacy than the assigned-goals and no-goals group. At the conclusion of the experiment, the self-set group had an average self-efficacy score of 86.7. The assigned-goals group had an average self-efficacy score of 69.3 and the no-goals group had an average score of 60.1. The self-set group also demonstrated significantly higher subtraction skills than the group with assigned goals. These findings suggest that goals promote self-efficacy and that self-set goals are more beneficial than assigned goals. When goals are assigned by another person, they may evoke performance anxiety and interfere with task involvement. Guiding children to set their own goals can lead to increases in their self-efficacy, confidence, and skill level.

THE ROLE OF SELF-EFFICACY DURING TRANSFER

The beliefs that individuals hold about their abilities and efforts have a powerful influence on the ways they behave (Bandura, 1986; Pajares, 1996). Individuals engage in tasks in which they feel competent and confident, and they avoid those in which they do not. Efficacy beliefs determine how much effort people will expend on an activity and how long they will persevere when confronting obstacles. If clinicians expect children to

generalize and transfer skills to new situations, self-efficacy needs to be increased. Children will hesitate to engage in tasks that seem uncomfortable, especially if they feel personally incapable or incompetent. One way to increase the likelihood that children attempt to use strategies in new situations outside of the clinic is to prepare them in ways that increase their self-efficacy for such situations.

CLINICAL IMPLICATIONS

Child Input During Goal Setting

In terms of working with school-aged children who stutter, clinicians can promote self-efficacy and the likelihood of progress by including clients in the goal-setting process. Clinicians often design treatment plans independently with no input from the client and then share the goals and objectives with parents and family members. Many times the child is not included in the discussion of goals because adults assume that the child is too young to understand. However, research shows that children perform better when they are aware of their goals, and that self-efficacy and meaningfulness is increased when they are responsible for some level of input.

Furthermore, the *type* of goals that you focus on with the school-aged population can also be important. The child should be included in the development of long-term goals so that they have a more holistic understanding of what he/she is working towards. Yet, when developing charting exercises or assigning speech tasks as homework, clinicians should provide clear markers of progress. With this population, short-term and task-oriented goals are preferred over vague, long-term goals (Bandura, 1982). Clear, task-oriented goals can guide the child to action, provide immediate incentive, and allow children to judge their performance.

If assignments include very clear, measurable goals, the completion of the tasks can aid in the development of learning, mastery, self-motivation, and self direction (Scarborough et. al, 2010). The feeling of success can also decrease feelings of anxiety, futility, and the inability to influence one's environment (Bandura, 1982). These feelings are often high in children who stutter. In addition to being clear, clinicians should also ensure that the tasks will allow the child to experience some success. This will improve self-efficacy, which can serve to further motivate the child and thus promote the development of skill.

In sum, the child should be included in the process of establishing goals. Once a long-term goal has been established, the clinician should guide the child to break the goal down into a series of intermediate or short-term goals. Together, the clinician and child can come up with a few concrete tasks to be completed within a short time frame, rather than in the distant future. This will promote feelings of progress and self-efficacy, while also helping children understand that small, daily tasks will help them reach their larger, long-term goals. See Appendix D and E for blank goal worksheets.

Appendix D contains a goal worksheet that can be used as a game. The child and clinician can write a long-term goal at the finish line and then write short-term goals in the smaller circles. Once the goals have been established, children can begin at "Start" and work their way towards the finish line as the complete their intermediate goals. Appendix E contains a blank goal worksheet designed for younger children. The concept is similar, but the short-term goals are written onto the circles of a caterpillar and the long-term goal is written next to a butterfly. Both of these worksheets are designed to aid children in the process of goal setting and promote feelings of success as they work toward a larger goal.

Brainstorming and Preparing for New Situations

The clinician should include brainstorming as a part of preparing the child for transfer. This can take place in the form of a game (such as Jeopardy) and may include conversational exploration and eventually role-play. Categories might include school situations, home situations, restaurants, and bullying. The primary purpose of this activity will be to present possible situations that may occur in order to help the client feel more prepared and confident about transferring skills and strategies. In a safe environment, the clinician can guide the child through hypothetical situations, reactions, techniques that could be used, possible emotions that may occur, and coping strategies. The questions in the game should be personalized for the particular client. The game will hopefully teach children how to think through situations on their own, so that eventually they feel capable of doing this even after therapy has ended. A "Bonus" category on the Jeopardy board may include challenging situations such as bullying, or may include factual questions to introduce lighter topics throughout the game. See Appendix E for an example Jeopardy board. You may also find a blank Jeopardy PowerPoint template here: http://www.edtechnetwork.com/downloads/jeopardy_templates/basic_jeopardy_template_2003.ppt.

Goal Setting and Strategic Action

Defining Success And Accountability

Ecological physical education research suggests that an individual's sense of accountability is what drives the instructional task system (Siedentop, 2002). In order to be successful, an individual needs to be held accountable for realistic goals. Goals need to be further defined and broken down into smaller components, or strategic actions. By defining and breaking broad goals into concrete actions, children are better equipped to work toward a goal, evaluate their progress, and hold themselves accountable. Holt et al. (2012) investigated how self-set goals, feedback, and accountability during soccer practice affected the transfer of skills to competitive play in 10-12 years old males.

In order to target accountability, the coach and players explicitly defined the practice requirements and what constitutes "successful" performance. This required players to analyze a task and break it down into smaller parts. The children wrote down exactly what they had to do for each task. Children were also asked to set challenging and measurable goals for specific performance behaviors. They were held accountable for these goals through the use of objective assessment and feedback after each practice. Lastly, they were rewarded as a group (with bonus game play) based on self-set goal attainment.

The authors found that the formal accountability, feedback, and reinforcement procedure maximized learning. Quality of performance (soccer skills) improved for each participant, and the participants also reported a greater confidence in these skills during actual competitive situations outside of practice. These school-aged players reported that self-set goals, objective feedback, and self-charting motivated them to do their best.

CLINICAL IMPLICATIONS

Accountability Chart

Prior to completing any treatment or transfer activity, children should be guided through the process of defining the task or action in his/her own words. The components of the task should be concrete and attainable. An added bonus is that the development of the accountability chart will allow for the clinician to check for the understanding of directions and comprehension of the strategy.

Next, the child should define the success criteria, under the guidance and scaffolding by the clinician. When defining how to measure success, clinicians can ensure that: a) the child understands exactly what the clinician will be evaluating, b) the child has a reasonable success criteria in mind, and c) feedback will be mutually agreed upon by both the clinician and child. If the activity is taking place within session, both the client and clinician should provide feedback immediately following the completion of the task. If the task is assigned for homework, the child can conduct self-assessment and reflection. See Appendix F for a blank Accountability Chart.

Table 1: Accountability Chart

Task	**Action Definition**	**Success Criteria**	**Feedback/ Assessment**	**Reinforcement/ Reward**
Cancellation	*1. Feel my stutter* *2. Pause my stutter* *3. Take a deep breath* *4. Say the word again, in an easy and relaxed way*	*Remember to use cancellation 8 out of 10 times. Make sure that the second time I say the word, I remember to take a breath and say it in a lighter, more relaxed way.*	*I used cancellation 9 out of 10 times.*	*An extra star on my star chart. Once I get 10 stars, I get to practice my techniques while going on a scavenger hunt around the clinic.*

Daily Strategic Actions

In order to promote and facilitate transfer of treatment strategies to outside environments and contexts, it may help to break a goal down and assign a series of daily strategic actions. The consistency of daily actions will make help to transfer more of a habitual process that is built into the child's daily life. The small, attainable goals will also serve to increase self-efficacy by allowing children to experience success on a daily basis. The Daily Strategic Action will be one specifically defined task (rather than a vague, large goal) and will therefore increase the likelihood that an attempt will be made.

The act of breaking a larger goal into small tasks also promotes the mastery goal orientation by showing children that goal attainment is a gradual process that includes many small victories. One option is to create Daily Strategic Action assignments that become increasingly more challenging throughout the week. Clinicians can personalize

the activity and make it more enjoyable by having children tape their Daily Strategic Actions to a weekly calendar board, insert the Daily Strategic Actions into a special box, etc.

Accountability for the completion of Daily Strategic Actions should also be included in order to encourage children to complete their tasks and homework assignments. For example, the clinician can have the child bring his Daily Strategic Action homework to each session. The child or clinician can roll a die or draw a card to reveal a number, which corresponds to one of the tasks. Likewise, if the child is putting his/her Daily Strategic Action cards into a box, the clinician can pull one of the cards out at random. The randomly chosen task will then be discussed. This may encourage children to complete all the tasks, and it will also allow for an exploratory conversation. The clinician can use this time to compliment the child on the completion of the task and ask questions. See Appendix G for example Daily Strategic Action cards.

Self-Regulation

Finn (2003) describes stuttering treatment as a collaborative process in which clinicians help clients learn how to manage the process of their own behavior change. Transfer and maintenance depends not only on the compliance of the child during treatment sessions, but also on his/her self-regulation outside of the therapy room. In fact, self-managed practice of newly acquired speech techniques outside of the treatment setting may actually be the most powerful element of stuttering treatment (Ingham, Ingham, & Bothe, 2012).

Up until now, this report has focused on how a clinician can promote intrinsic motivation, self-efficacy, and goal setting in school-aged children who stutter. Once these components have been targeted, a child may possess the ability to self-regulate. Self-regulation is essentially the culmination of these skills, followed by self-evaluation and reflection. Self-regulation is the skill necessary for the ongoing maintenance of treatment gains after the termination of therapy.

Specifically, self-regulation involves intrinsic motivation, self-set goals, strategic action, and self-monitoring (Cazan, 2012). It is a combination of motivational, metacognitive, and behavioral components (Zimmerman, 1990). Taken together, the necessary components of self-regulation are cognitively and behaviorally advanced for a school-aged child. This developmental consideration explains why school-aged children may be successful in the therapy room but often struggle to transfer their gains to their private lives.

SELF-MONITORING

Reid et al. (2005) conducted a meta-analysis of studies on self-regulating techniques for children with ADHD. He reports that many children with ADHD possess the skills needed to perform desired behaviors, but difficulties with self-regulation may prevent them from being able to perform the behaviors consistently or maintaining performance over time (Reid et. al, 2005). This statement can be likened to the transfer and maintenance process for children who stutter. While children may have the ability to use fluency techniques, their young age and underdeveloped self-regulation skills may prevent those techniques from being transferred and maintained.

Self-monitoring is the process of observing and recording one's behavior. It involves identifying the presence of a target response and then self-recording some aspect of the response. Within educational literature, two types of self-monitoring are identified: self-monitoring of attention (SMA) and self-monitoring of performance (SMP) (Reid, Trout, & Schwartz, 2005). SMA is used to encourage a child's awareness of his/her attention to a required task. It requires the child to be able to self-assess whether he/she was paying attention. When applied to fluency therapy, this could be useful during treatment activities. Often a child will complain that it is difficult to remember to use strategies in novel situations. After completing a task, the child can self-assess whether he/she consciously utilized fluency techniques or whether he/she forgot to use techniques in the moment. SMA can be utilized during the session and as a part of homework in order to heighten awareness and attention to technique use.

SMP, on the other hand, typically involves a child performing an academic task and then self-monitoring the amount of completion or the accuracy of the work. SMP can take place during or immediately following the task. Graphing is often a major component of SMP (Reid et. al, 2005; Reid & Harris, 1993). Depending on the child,

SMP may be useful in fluency therapy. The child can be asked to monitor the amount of activities attempted outside of clinic (completion) or how effectively he/she used a strategy (accuracy). A clinician can present a graph of the child's progress every few weeks to demonstrate gradual skill development and promote intrinsic motivation as well as mastery goal orientation.

SELF-REFLECTION AND SELF-RECORDED FEEDBACK

Another way to improve self-regulation is through the use of self-recorded feedback. A more objective version of self-recorded feedback, in the form of a rating scale, has been included earlier in this report. Journal writing is a more subjective, exploratory way to encourage self-reflection and self-recording. Learning journals have been linked to improvements in metacognition and self-regulation (Huber & Renkl, 2009).

Cazan (2012) investigated the use of learning journals as a way to promote self-regulated learning strategies in 117 first year college students. The experimental group received instruction and kept a learning journal while the control group received instruction but no journal prompts. For the experimental group, the journals allowed for elaboration and reflection after periods of learning. Journal prompts included statements and questions such as: present the main points of the lesson, [list] which main points you have understood well and which main points you haven't understood yet, and explain]how you can overcome your comprehension problems. Cazan found significant differences between the experimental and control group regarding self-regulated learning strategies. The learning journal prompts successfully activated cognitive and metacognitive strategies that resulted in superior learning outcomes. Even behavioral strategies improved, despite the fact that they were not specifically trained during the

experiment. Additionally, Cazan found that motivational strategies such as situational interest enhancement also improved. Although the journal prompts used in this study were advanced due to the nature of the course and the age of the subjects, the concept can still be applied to school-aged children who stutter.

CLINICAL IMPLICATIONS

Self-Reflective Learning Journals

A self-reflective learning journal can be adapted for use with school-aged children in fluency therapy. Self-monitoring of performance, self-monitoring of attention, and written prompts can all be combined to target the components necessary for self-regulation. See Table 2 for example prompts and a rationale behind each prompt.

Appendix I contains a more simplified learning journal for use with younger children. It contains three large squares with basic prompts that encourage the child to summarize and reflect on the techniques. For a blank learning journal similar to the one in Table 2, see Appendix J. This format may be used with older children who have more advanced critical thinking skills.

Table 2: Learning Journal

Journal Prompt	**Rationale**	**Example**
Describe the fluency strategy in your own words.	This question asks children to prove that they comprehend the fluency strategy. This also contributes to accountability.	*Easy onset is when I take a breath and then speak slowly while I let my air out. I think about touching my articulators lightly and picture my vocal folds coming together gently.*
Why is this strategy important and useful?	This will enhance meaningfulness to increase internal motivation.	*It will help me so that my sounds don't get stuck. I can let my vocal folds be more open and relaxed, rather than feeling tight. This way I don't feel tense. I can ease myself into my speech and plan ahead to help myself.*
How aware was I when practicing the technique during this task?	This will target the self-monitoring of awareness.	*I was aware most of the time, but forgot towards the end.*
How accurate was I at using the technique?	This will target the self-monitoring of performance, which will promote overall self-evaluation and self-driven behavioral changes.	*I was accurate sometimes, but I started getting nervous and using a fast rate, so I stopped using easy onset. Next time I will try to remember to slow my rate also.*
When can you use this strategy?	This will encourage the child to think about transfer and plan a time to try the technique. This will also increase personal significance. If help is needed, the clinician can participate in the brainstorming.	*I think I might use this strategy when I'm really nervous. Maybe when I have to answer the phone and I'm really worried to start speaking.*
What can you do well during this strategy?	This question will promote self-efficacy beliefs by building up confidence.	*I do a good job of remembering to take a full breath when I use this strategy. That used to be hard for me.*
Which parts of this strategy are still difficult for you? How can you continue to work on the difficult parts?	This question encourages the child to give self-recorded feedback and to reflect on ways to improve. This allows the child and clinician to have a conversation about the child's proximal goals, and define ways to be successful.	*It is hard for me to make sure I start speaking when I'm breathing. I can continue to work on this by practicing 10 sentences every day this week. I will also use the picture my speech therapist gave me so I can monitor myself.*

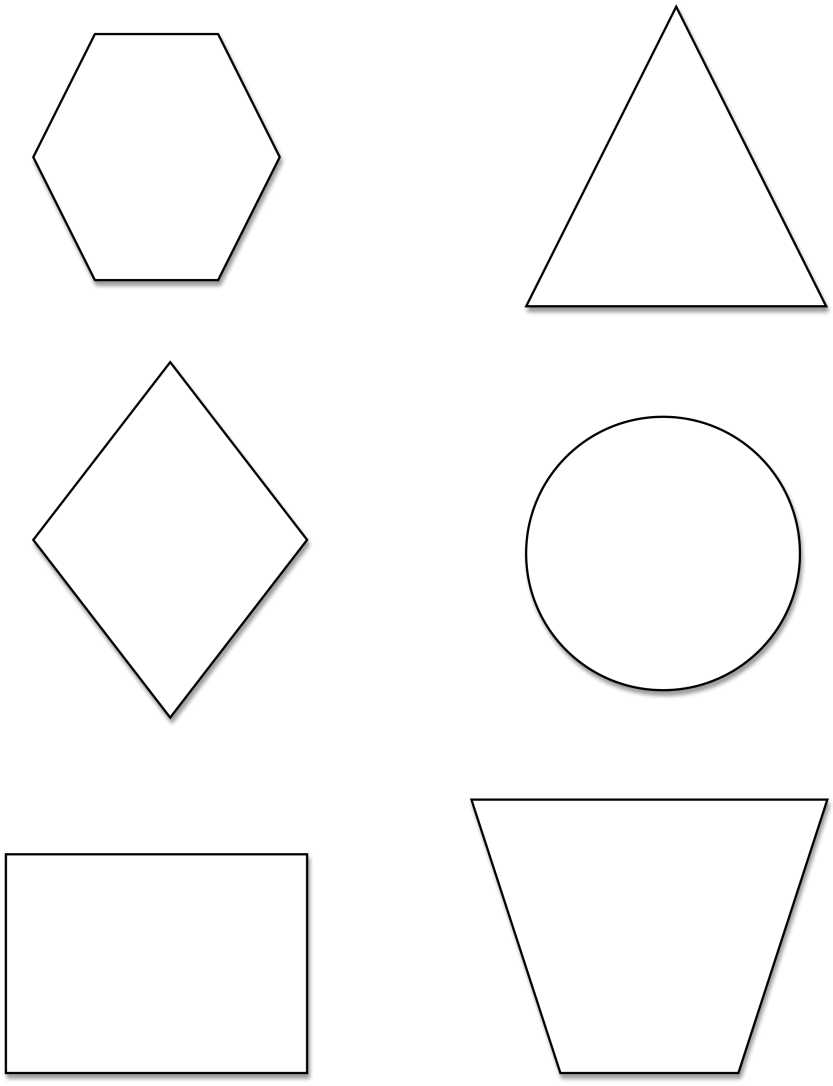
Conclusion

Transfer and maintenance is one of the most important, yet challenging, aspects of fluency therapy. This process is especially difficult for the population given that it depends heavily on the responsibility and conscious determination of the client. The necessary components of transfer and maintenance (e.g., internal motivation, self-efficacy, goal setting, strategic action, and self-regulation) are complex and difficult to instill in children. Thus, finding evidence-based strategies for facilitating transfer and maintenance in school-aged children remains a challenge. Although there is a need for more research regarding transfer and maintenance within the school age stuttering population, evidence from outside the field can provide valuable insight into ways to facilitate motivation, self-efficacy, goal setting, and self-regulation.

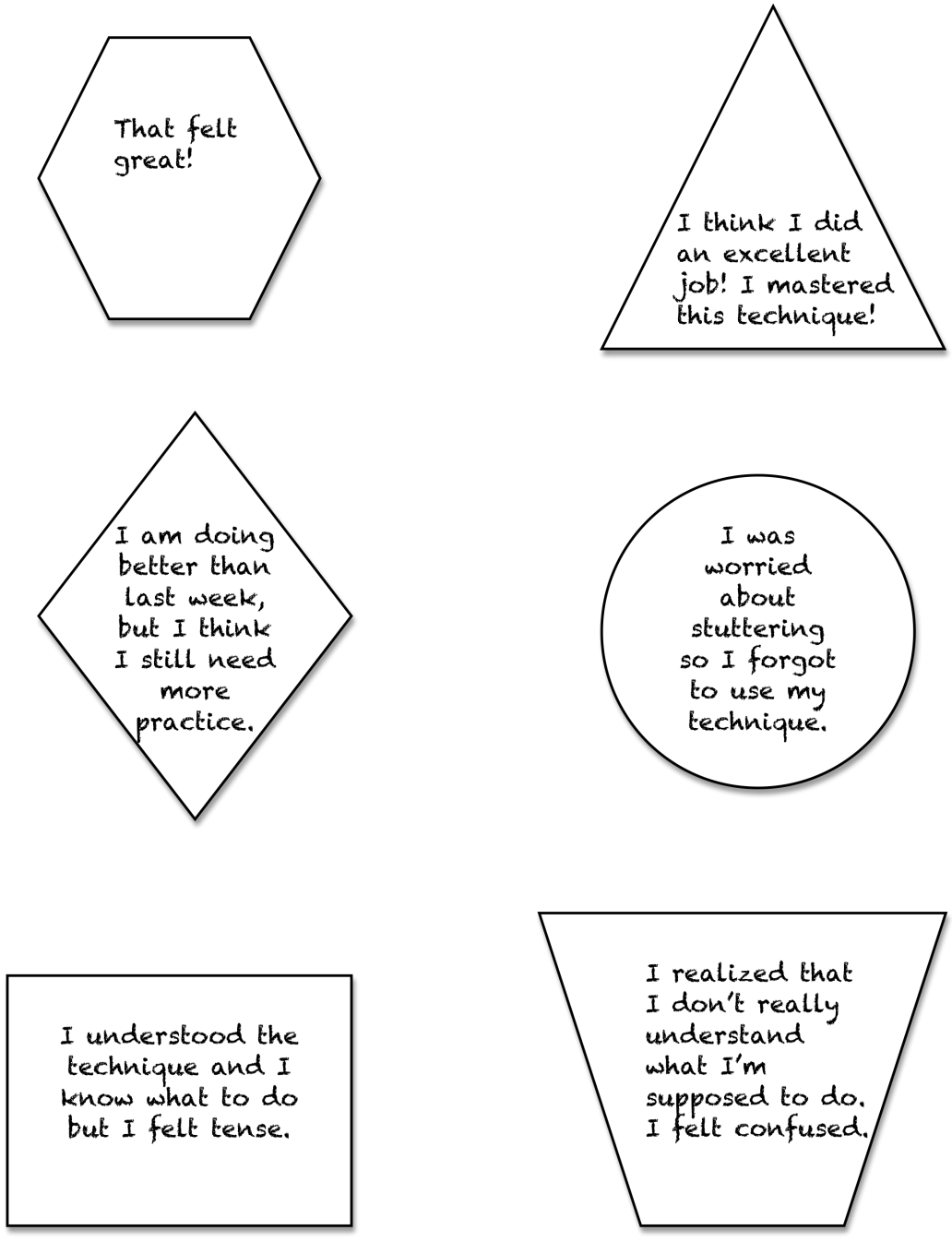
In sum, clinicians should encourage internal motivation by helping children view fluency and speech therapy as a gradual, progress-oriented process rather than an all-or-nothing competition. The clinician should carefully guide children through dialogue that will help enhance understanding and meaningfulness of the activities and strategies. Self-efficacy should be encouraged through the implementation of specific, attainable goals that will lead to a feeling of steady success. The child should participate in the brainstorming and acting out of new situations and contexts outside of the clinic to promote confidence and self-efficacy during transfer activities. The clinician should also provide children with the tools to set their own goals, evaluate their own progress, and hold themselves accountable. Together, these strategies will enhance the transfer and maintenance of targeted behaviors for school age children who stutter.

Appendices

Appendix A: Blank Rating scale



APPENDIX B: EXAMPLE RATING SCALE WITH PERSONALIZED DESCRIPTORS



APPENDIX C: CHARTING HOMEWORK

Name:

Homework for the Week of _____

Try to use your strategies in four different situations this week. Draw or write those 4 situations below.

Day 1:

Day 2:

Day 3:

Day 4:

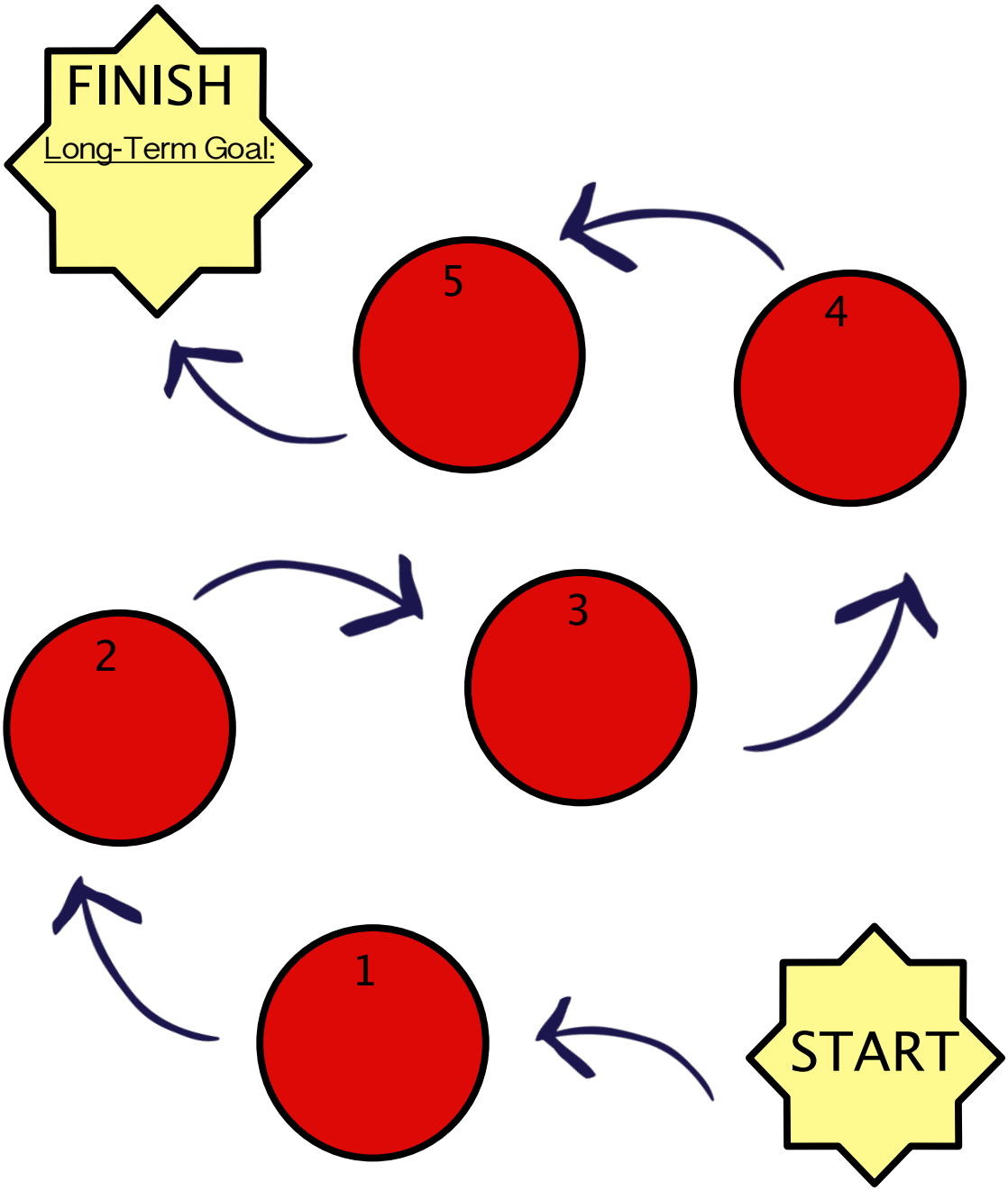
Teach a family member about one of your strategies. At the end, ask them what they found to be the coolest part. Write it down below.

Draw a star in the chart below every time you practice a strategy. How many stars did you get this week?

I got _____ stars!

APPENDIX D: GOAL WORKSHEET 1

The Game of Goals



APPENDIX E: GOAL WORKSHEET 2

Help Your Hardworking Caterpillar Turn Into a Butterfly!

Long-Term Goal:

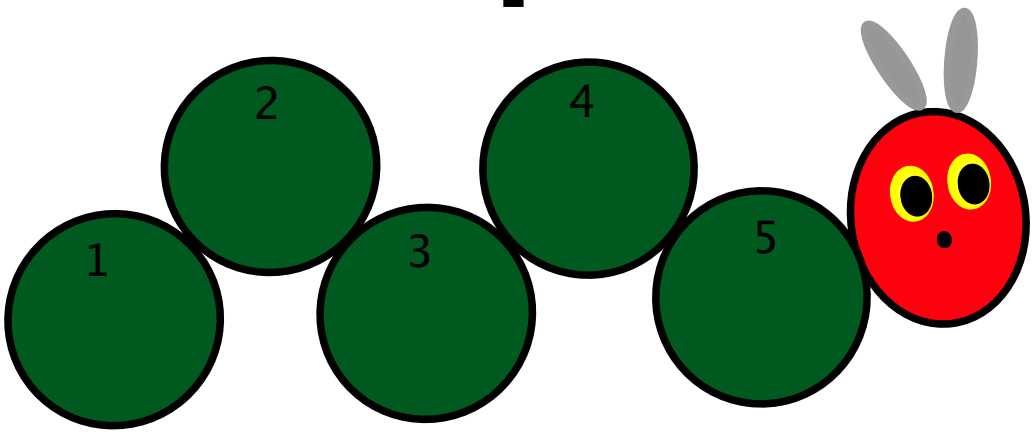
_____

_____

Due Date:

_____

_____



APPENDIX F: JEOPARDY BRAINSTORMING GAME

School	Home	Out and About	Bonus Challenges
100	100	100	100
200	200	200	200
300	300	300	300
400	400	400	400
500	500	500	500
600	600	600	600
700	700	700	700

APPENDIX G: ACCOUNTABILITY CHART

Task	Action Definition	Success Criteria	Feedback/ Assessment	Reinforcement/ Reward

APPENDIX H: DAILY STRATEGIC ACTION CARDS

DAILY STRATEGIC ACTION

Today I will:

_____

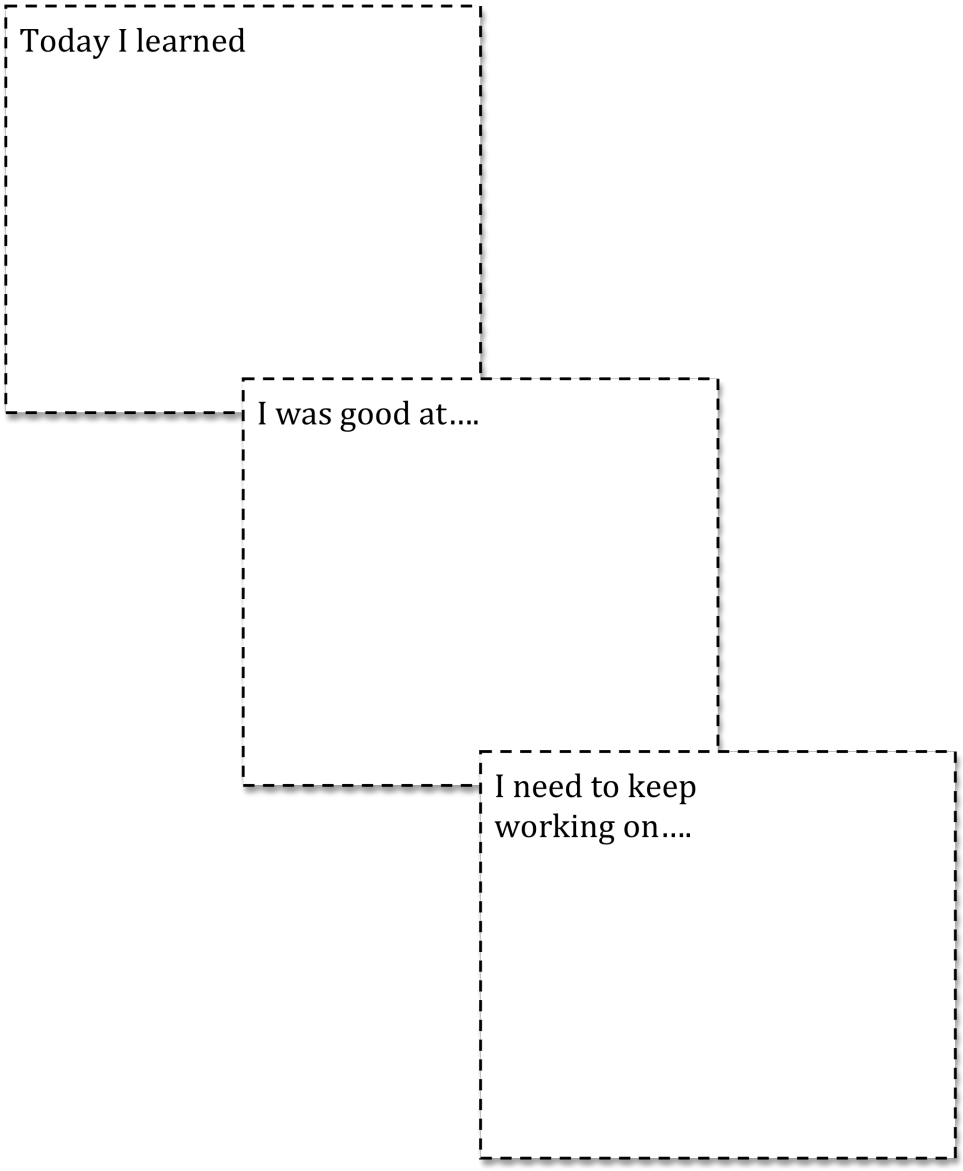
DAILY STRATEGIC ACTION

TODAY I WILL:

_____

APPENDIX I: LEARNING JOURNAL FOR YOUNGER CHILD

Name:_____



APPENDIX J: LEARNING JOURNAL FOR OLDER CHILD

Name: Date:

Journal Prompt	

References

Ames, C. (1992). Goals, structures, and student motivation. *Journal of Educational Psychology*, *84*, 261–271.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37,* 122–147.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bereby-Meyer, Y., & Kaplan, A. (2005). Motivational influences on transfer of problem-solving strategies. *Contemporary Educational Psychology*, *30*(1), 1–22.

Bénabou, R., & Tirole, J. (2003). Intrinsic and extrinsic motivation. *Review of Economic Studies*, *70*, 489–520.

Cazan, A. M. (2012). Enhancing self regulated learning by learning journals. *Procedia - Social and Behavioral Sciences*, *33*, 413–417.

Deci, E. L., Koestner, R., & Ryan, R. M. (2001). Extrinsic Rewards and Intrinsic Motivation in Education: Reconsidered Once Again. *Review of Educational Research*, *71*(1), 1–27.

Digelidis, N. Papaioannou, A. Laparidis, K. Christodoulidis, T. (2003). A one-year intervention in 7th grade physical education classes aiming to change motivational climate and attitudes towards exercise. *Psychology of Sport and Exercise*, *4*(3), 195–210.

Dweck, C.S. Leggett, E. L. (1988). A social–cognitive approach to motivation and personalitye. *Psychological Review*, *95*, 256–273.

Elliot, A., & Harackiewicz, J. (1994). Goal setting, achievement orientation, and intrinsic motivation: a mediational analysis. *Journal of Personality and Social Psychology*, *66*(5), 968–980.

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist*, *34*, 169–189.

Finn, P. (2003). Self-regulation and the management of stuttering. *Seminars in Speech and Language*, *24*(1), 27–32.

Glogger, I., Lars, H., Rolf, S., Matthias, N., Renkl, A. (2009). Activation of learning strategies in writing learning journals. *German Journal of Educational Psychology*, *23*, 95–104.

Holt, J. E., Kinchin, G., & Clarke, G. (2012). Effects of peer-assessed feedback, goal setting and a group contingency on performance and learning by 10–12-year-old academy soccer players. *Physical Education & Sport Pedagogy*, *17*(3), 231–250.

Ingham, R., Ingham, J., & Bothe, A. (2012). Integrating functional measures with treatment: a tactic for enhancing personally significant change in the treatment of adults and adolescents who stutter. *American Journal of Speech-Language Pathology*, *21*(August), 264–278.

Irani, F., Gabel, R., Daniels, D., & Hughes, S. (2012). The long term effectiveness of intensive stuttering therapy: a mixed methods study. *Journal of Fluency Disorders*, *37*(3), 164–78. Kohn, A. (1993). *Punished by Rewards*. New York: Plenum Press.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, *66*(4), 543–578.

Plexico, L., Manning, W. H., & Dilollo, A. (2005). A phenomenological understanding of successful stuttering management. *Journal of Fluency Disorders*, *30*(1), 1–22.

Reid, R., Trout, A. L., & Schartz, M. (2005). Self-regulation interventions for children with attention deficit/hyperactivity disorder. *Exceptional Children*, *71*, 361–377.

Reid, R., & Harris, K. R. (1993). Self-monitoring of attention versus self-monitoring of performance: Effects on attention and academic performance. *Exceptional Children*, *60*, 29–40.

Scarborough, M. K., Lewis, C. M., & Kulkarni, S. (2010). Enhancing adolescent brain development through goal-setting activities. *Social work*, *55*(3), 276–8.

Sidentop, D. (2002). Ecological perspectives in teaching research. *Journal of Teaching in Physical Education*, *21*, 427–440.

Zimmerman, B. (1990). Self-regulated learning and academic achievement: An overview. *Educational psychologist*.

Vita

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This report was typed by the author.