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# Self-perceived competence and social acceptance of children who stutter

Naomi Hertsberg  
*University of Iowa*

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SELF-PERCEIVED COMPETENCE AND SOCIAL ACCEPTANCE  
OF CHILDREN WHO STUTTER

by

Naomi Hertsberg

A thesis submitted in partial fulfillment of the  
requirements for the Master of Arts degree  
in Speech Pathology and Audiology  
in the Graduate College of  
The University of Iowa

May 2012

Thesis Supervisor: Professor Patricia Zebrowski

Graduate College  
The University of Iowa  
Iowa City, Iowa

CERTIFICATE OF APPROVAL

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MASTER'S THESIS

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This is to certify that the Master's thesis of

Naomi Hertsberg

has been approved by the Examining Committee  
for the thesis requirement for the Master of Arts  
degree in Speech Pathology and Audiology  
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## ACKNOWLEDGMENTS

I would like to extend my heartfelt gratitude to Dr. Tricia Zebrowski for her thoughtful and persistent guidance throughout the entire thesis-writing process. She encouraged me to think deeply and critically about the topics included in this work, and motivated me to write something that was more than just “good enough.” Another big thanks to my committee members, Toni Cilek and Dr. Melissa Duff, for their participation, input, and faith in me that I would finish in time to graduate with my cohort. Lastly, thanks to Dr. Barry Guitar and Kristin Chmela, my mentors and fellow members of the tribe of the tangled tongue, for their continued inspiration and unwavering support. I have been incredibly fortunate to have so many insightful, caring, and inspiring teachers in my life so far.

## ABSTRACT

Young children who stutter have shown the capability of developing an awareness of stuttering as early as age two (Ambrose & Yairi, 1994; Yairi & Ambrose, 2005; Boey et al., 2009; Ezrati-Vinacour, Platzky, & Yairi, 2001). The child's awareness of both his communication difficulty and the response of listeners to his speech has the potential to adversely affect his cognitive and social-emotional development, as well as his self-perception of overall competence. The purpose of this study was to examine self-perceived general competence and social acceptance in children who stutter (CWS) and children who do not stutter (CWNS), and to assess the extent to which temperament, speech disfluency, expressive and receptive language abilities, and home environment both co-vary and predict children's perception of their own competence. Participants included 16 CWS and 16 CWNS between the ages of 4;0 and 5;10. Results of the MANOVA revealed no significant between-group differences in perceived competence or social acceptance, language abilities, temperament, or home environment between the two groups; because stuttering severity and time since onset of stuttering were not calculated for CWNS, these two values were not included in the MANOVA. Results of the backwards linear regressions revealed that the best two-regressor model for predicting perceived general competence in all subjects included the temperament constructs of surgency and negative affectivity; in CWS only, surgency and expressive language together were the most predictive of perceived general competence. The best two-regressor model for predicting perceived social acceptance in all subjects included negative affectivity and receptive language; in CWS only, receptive language and stuttering severity together were most predictive of perceived social acceptance. However, none of these relationships reached significance. Taken together, results suggest that as a group, CWS present with similar temperamental profiles as

CWNS, and that a child's speech and language skills are linked to his perception of peer acceptance, while a tendency for risk taking and a generally positive view of new situations may be more important for self-perception of overall competence in the world. Theoretical and clinical implications are discussed.

## TABLE OF CONTENTS

LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER I: INTRODUCTION.....	1
CHAPTER II: REVIEW OF THE LITERATURE.....	8
Competence .....	8
Temperament.....	13
Language.....	20
Home Environment.....	25
Purpose of the Present Study.....	31
CHAPTER III: METHODOLOGY.....	32
Procedures.....	32
Participants.....	32
Measures.....	36
Data Analyses.....	42
CHAPTER IV: RESULTS.....	44
Between Group Differences.....	44
Child Characteristics that Predict PSPCSA Scores.....	46
CHAPTER V: DISCUSSION.....	50
Limitations of the Present Investigation & Directions for Future Research....	55
APPENDIX A: CALCULATION OF STUTTERING SEVERITY.....	59
APPENDIX B: ITEMS ON THE PSPCSA (PRESCHOOL-KINDERGARTEN FORM).....	60
APPENDIX C: DESCRIPTION OF TEMPERAMENT SUBSCALES.....	61
REFERENCES.....	62

## LIST OF TABLES

Table 1: CWS characteristics.....	34
Table 2: CWNS characteristics.....	35
Table 3: Mean scores (standard deviations) of component and composite PSPCSA scores.....	44
Table 4: Mean scores (standard deviations) of other outcome measures.....	46
Table 5: Most predictive variables of perceived general competence in CWS and CWNS.....	47
Table 6: Most predictive variables of perceived general competence in CWS.....	48
Table 7: Most predictive variables of perceived social acceptance in CWS and CWNS.....	48
Table 8: Most predictive variables of perceived social acceptance in CWS.....	49
Table C1: Description of temperament subscales (Rothbart, 2011).....	62



## LIST OF FIGURES

Figure 1: Distribution of stuttering severity in CWS participants .....	36
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## CHAPTER I INTRODUCTION

Though many theories of stuttering onset and development have been offered over the years, the general consensus among researchers and clinicians is that stuttering is a complex disorder that arises from the interaction of various risk factors (Smith & Kelly, 1997; Conture et al., 2006; Starkweather, 1987). Central to this multifactorial framework is the assumption that there is no single environmental or biological factor that is either necessary or sufficient to result in the onset, recovery, or chronicity of stuttering. Rather, a variety of risk factors converge that trigger stuttering and its development over time. Some of the identified risk factors for the persistence of stuttering include being male (Yairi, 2006), exhibiting stuttering behaviors for longer than 24 months (Yairi & Ambrose, 1999), a family history of persistent stuttering (Poulos & Webster, 1991), producing a greater proportion of stuttering-like disfluencies compared to other disfluencies (Pellowski & Conture, 2002), having a behaviorally inhibited or sensitive temperamental profile (see review in Seery, Watkins, Mangelsdorf, & Shigeto, 2007), having language processing abilities below or above age-level expectations (Yaruss, LaSalle, & Conture, 1998, Watkins, Yairi, & Ambrose, 1999; Anderson & Conture, 2000; Nippold, 1999), and the presence of concomitant disorders (Arndt & Healey, 2001).

In understanding the problem of stuttering in its entirety, it is imperative to consider the motor, sensory, social-emotional, and cognitive systems – modalities within an individual that mature and continually interact to create a unique experience of the world. The motor system refers to physical movements, both reflexive and voluntary. The sensory system is responsible for processing sensory information ranging from auditory, visual, somatosensory, gustatory, and olfactory sensations. The social-emotional system relates aspects of external social interactions

with internal understanding and emotional regulation. The cognitive system broadly refers to one's capacity for memory, language, problem solving, information processing, and the formulation of thoughts, beliefs, and values. All four of these developmental systems interact as children grow, and are continually influenced by events in the child's environment and the child's reaction to them.

From this developmental interactionist framework, stuttering is viewed as more than just a disorder of speech output. Humans use speech to communicate basic wants and needs, but also to form connections with others by expressing thoughts, feelings, and observations about the world around us to others. When an individual's ability for self-expression is impeded, he may experience altered self or peer evaluations which influence his attitudes about himself as a communicator and his competence in his environment. "[Self-evaluation] depends on the attitudes and evaluations of the people who are important to us and with whom we interact daily. Their expectations are powerful forces in shaping our self-concepts, positively or negatively" (Van Riper, 1982, p. 232).

That stuttering can affect one's perceived ability to socially interact has implications for one's social-emotional and cognitive development. Between the 1920s and 1980s, a tremendous effort was put into finding a fundamental difference in personality between people who do and do not stutter (see review in Bloodstein & Bernstein Ratner, 2008). The view that stuttering reflects a psychological abnormality has been abandoned by those knowledgeable about the disorder. Although stuttering is no longer viewed as an intrinsic personality disorder, stuttering does in fact have implications for the social-emotional and cognitive development of an individual affected by it. Bloodstein and Bernstein Ratner (2008) explain that people who stutter may often be "socially maladjusted" which may motivate them to avoid social speaking

situations. They further posit that people who stutter are more likely to feel insecure about themselves than people who do not stutter, and this insecurity may contribute to the persistence of stuttering. Insecurity is rooted in anxiety about one's performance and subsequent self and peer evaluations. The relationship between stuttering and anxiety has been examined for years. The two recognized types of anxiety are trait anxiety (i.e., a person's inherent level of anxiety) and state anxiety (i.e., situation-specific anxiety). Results in this area have proven inconclusive largely due to methodological inconsistencies including the construct of anxiety, trait anxiety measures, participant numbers, treatment status of participants, and speaking tasks (Iverach, Menzies, O'Brian, Packman, & Onslow, 2011). Several studies have found that people who stutter have higher trait anxiety than people who do not stutter (Ezrati-Vinacour & Levin, 2004; Craig, Hancock, Tran, & Craig, 2003); other studies have found that people who stutter have higher state anxiety than typically fluent speakers or speakers who have recovered from stuttering (Davis, Shisca, & Howell, 2006; Ezrati-Vinacour & Levin, 2004). Overall, it is reasonable to speculate that the psychological tendencies of people who stutter are consequences of years of stuttering rather than the cause of it.

Historically, it has been thought that awareness plays an important role in the perpetuation of stuttering. Awareness refers to possessing knowledge or perception of a situation or fact, in this case stuttering (Boey et al., 2009). It is of interest to understand how early a child becomes aware of his/her disfluencies because forming awareness of one's speech is a prerequisite for forming attitudes and beliefs about one's ability to communicate and interact socially. Several researchers have recently created experiments to examine how young a child becomes aware of speech disfluencies (Ambrose & Yairi, 1994; Yairi & Ambrose, 2005; Ezrati-Vinacour, Platzky, & Yairi, 2001). In these studies, young children watched videotapes of fluent

and disfluent puppets and then were asked to identify either which puppet most resembled how he/she spoke or simply which puppet spoke fluently and disfluently. Results from these studies indicated that children begin to show awareness of speaking patterns in others from as young as two or three years of age. However, awareness tends to develop with age and children tend to reach fuller awareness between five and seven years of age. Boey et al. (2009) surveyed the parents of 1122 Dutch-speaking children who stutter to explore whether these children made remarks or reacted a certain way to their stuttering that indicated awareness of stuttering (e.g., sadness, asking help, posture, stopping). Results of this study showed that 56.7% of two-year-old children showed awareness about their own stuttering, and that percentage gradually increased with age; 89.7% of seven-year-old showed self-awareness of stuttering. Taken together, these findings reveal that children who stutter are able to form awareness about their own speaking patterns and those of others from a young age, but this awareness tends to develop over time. It should be noted that self-awareness is distinct from self-regulation, although self-awareness is a necessary prerequisite for cultivating self-regulatory abilities.

As a group, research has shown that children who persist in stuttering tend to develop negative attitudes about speaking, and these negative attitudes associated with talking are significantly correlated with increased frequency of stuttering, negative emotion, and fears about speaking (Bajaj, Hodson, & Westby, 2005; De Nil & Brutton, 1991; Vanryckeghem & Brutton, 1996; Vanryckeghem, Hylebos, Brutton, & Peleman, 2001). For example, it has been shown that children who stutter as young as three may have significantly more negative attitudes towards speaking than age- and gender-matched peers who do not stutter (Vanryckeghem, Brutton, & Hernandez, 2005).

Knowing that stuttering has the capacity to negatively affect one's attitudes towards talking and one's social-emotional development might pose implications for the development of one's self-perceived competence. It is valid to assume that perceived competence could be influenced by stuttering, not that perceived competence is involved in the emergence of stuttering (Zebrowski, 2007). Perceived competence is an individual's perception that he/she has mastery of the skills necessary to meet environmental demands (Klein & Magill, 1998). Competence alludes to "good adaptation and not necessarily superb achievement" (Masten & Coatsworth, 1998, p. 400). It is an early developing trait that is believed to precede the development of self-concept and self-esteem. As toddlers mature, they learn to redirect their dependence on their caregiver towards greater independence in self-regulation (the child's ability to exert control over his attention, emotions, and behaviors), a skill that develops over time. From an early age, a child's ability to regulate his attention is an important factor in developing competency in a variety of domains (Nelson et al., 2009). The skills that children learn during childhood, from riding a bike to developing speech fluency, involve consistent and constant practice at both overt and subconscious levels. As a result of increased practice and consequent mastery, the child develops a perception of his own competence in the world – a view that is relatively stable over time and contributes to emotional, social, and academic development. A child's developing view of his own competence is mediated by, among other things, his temperament, language and social skills, behavior and its consequences (both internal and external), and the child's environment. These variables of interest will be discussed in greater detail in Chapter II.

These early self-perceptions mirror the cognitive abilities of young children in that self-perceptions are typically all-or-none in structure (one is either "good at doing things" or one is

not), directly linked to observable behaviors the child demonstrates, and are often unrealistically positive (Coplan, Findlay, & Nelson, 2004). The notion that young children typically view themselves in an overly positive light can actually be beneficial for their emotional and behavioral development. It has been speculated that possessing an inflated sense of ability may motivate some children to achieve greater levels of mastery and growth. Perceived competence may also serve as a “buffer” between the child’s environment or life events and cognitive or affective development (Tram & Cole, 2000). Because it is developmentally appropriate to have an overly positive view of oneself during the preschool years, it may be valuable to identify young children who perceive their competence realistically or negatively since it is developmentally atypical to do so. Having lower perceived competence at an early age can have predictive associations with a child’s social functioning. Young children with less positive self-perceptions demonstrate more internalizing problems (e.g., loneliness, social-withdrawal, anxiety), are excluded by peers, and typically have mothers who have passive or authoritative parenting styles (Coplan, et al., 2004). Early self-perceptions are likely to be maintained throughout the individual’s life. By middle school, very bright children who erroneously judge themselves as academically incompetent have reported feeling anxious, angry, and bored in school and reported avoiding, ignoring, and faking schoolwork (Miserandino, 1996). These children also tend to aim for and expect lower levels of success, were less likely to ascribe their high grades to ability, and were rated by their teachers as less persistent and less likely to excel in school than their more confident peers (Phillips, 1984). These maladaptive tendencies can promote long-lasting negative effects on an individual’s goal setting, achievement, and fulfillment in life.

The purpose of this study is rooted in the notion that awareness of stuttering can be detected at a very young age and that this awareness of stuttering has the capacity to adversely affect one's cognitive and social-emotional development. The negative communicative attitudes that young children who stutter may develop could potentially transfer to more generalized negative attitudes towards their ability to function adequately in their environment. Because of the documented repercussions of low perceived competence, it is of present interest to examine whether children's early self-perceptions and self-perceived competence are negatively affected by stuttering, an observation that has yet to be reported in the literature. Following, a review of pertinent literature and development of the current problem will be provided.



## CHAPTER II REVIEW OF THE LITERATURE

A child's developing view of his own competence is mediated by, among other things, his temperamental profile, language abilities, and characteristics of his or her environment. The following literature review will explore these areas of interest, with the understanding that these variables are not entirely independent of each other. This review is organized into five main sections. First, a discussion of the pertinent literature regarding competence will be offered, with four subsections titled *General Competence*, *Social Acceptance or Competence*, *CWS vs. CWNS*, and *Summary of Competence Literature*. The second main section discusses temperament, with four subsections titled *Temperament and General Competence*, *Temperament and Social Acceptance or Competence*, *CWS vs. CWNS*, and *Summary of Temperament Literature*. The third main section discusses language, with four subsections titled *Language and General Competence*, *Language and Social Acceptance and Competence*, *CWS vs. CWNS*, and *Summary of Language Literature*. The fourth main section relates to home environment and is divided in to four subsections – *Home Environment and General Competence*, *Home Environment and Social Acceptance or Competence*, *CWS vs. CWNS*, and *Summary of Home Environment Literature*. The final main section states the problem of interest and purpose of the present study.

### *Competence*

#### *General Competence*

In her longitudinal study of age- and gender-related changes in self-evaluative judgments from preschool through second grade, Mantzicopoulos (2007) did not identify any significant gender effects on the physical competence, cognitive competence, or peer acceptance

components of the *Pictorial Scale of Perceived Competence and Social Acceptance* (PSPCSA). The findings indicated that there were significant grade effects (i.e., preschool through second grade) across the three subscales of the PSPCSA, however the trends for cognitive and physical competence were contrary to expectation; children's mean scores tended to rise at kindergarten for both of these subscales and then rise again at second grade for the cognitive competence dimension. Only the trends for the peer acceptance subscale confirmed the hypothesis that children's self-evaluations were high at preschool and gradually declined thereafter. Klein and Magill-Evans (1998) confirmed that first and second graders with learning disabilities or Developmental Coordination Disorder were able to accurately report their self-perceptions of competence and peer acceptance. The children with learning disabilities reported lower perceived cognitive competence and peer acceptance than the normative sample, while the children with Developmental Coordination Disorder reported lower perceptions of physical competence.

Tram and Cole (2000) conducted a longitudinal study which investigated whether self-perceived competence played a mediating or moderating role between life events and depressive symptoms in ninth grade students. A mediator accounts for the interaction between two variables, whereas a moderator is a variable that influences the direction or strength of two variables. The authors of this study concluded from their findings that self-perceived competence served as a mediator, not a moderator, of the relation between negative life events and depressive symptoms; negative events predicted changes in self-perceived competence, while self-perceived competence predicted changes in depressive symptoms.

Since it is developmentally appropriate to have an inflated sense of perceived competence during the preschool years, it appears beneficial to identify young children who perceive their

competence realistically or negatively. Coplan and colleagues (2004) indicated that compared to their peers, children with less positive self-perceptions demonstrated more internalizing problems (i.e., loneliness, social-withdrawal), were more excluded by peers, and had mothers with less positive parenting styles (i.e., authoritarian, permissive). Overall, these results suggest that social interaction and positive listener feedback play an important role in the development of the self-system, and that children who have atypically low self-perceptions are at an early risk for a range of internalizing problems and social difficulties.

### *Social Acceptance or Competence*

Social interaction, early experiences, and connectedness have long been believed to weigh heavily on the formation of early self-perceptions and self-esteem. Klinnert and Bingham (1994) explain that the emotional quality of early relationships carries over to later relationships. Through repeated interactional experiences, interactional expectations are learned via this sequence; first, familiarity develops, then predictability, and, eventually, preference. These early experiences help the child establish sound social competence. Social competence broadly refers to effectiveness in social interactions, and can be thought of as a behavioral manifestation of the self in relation to others (Houck, 1999). It reflects a balance between the autonomous processes of self-assertion and self-regulation. Social competence has been shown to be associated with lower stress reactivity and higher self-regulation of attention and behavior (Eisenberg, Fabes, et al., 1997; Houck, 1999), both of which tend to be weaknesses in CWS who show more sensitive temperaments.

Nelson et al. (2009) used general competence scores of the PSPCSA, peer ratings, and teacher ratings to explore how social behaviors, subtypes of withdrawal, and peer

acceptance/rejection relate to self-perceptions of preschoolers. They found that children who have lower self-perceptions of their abilities than their peers tended to engage in more reticence, solitary-passive withdrawal, and solitary-active behavior. To explore the possible origins of negative self-perceptions in young children, Nelson, Rubin, and Fox (2005) examined the relations between various nonsocial behaviors (i.e., reticence and social withdrawal), observed peer acceptance at ages four and seven, and self-perceptions at age seven. Their findings suggested a gender difference. For girls, nonsocial behavior was negatively related to observed peer acceptance at ages four and seven; further, peer acceptance as early as age four was found to influence self-perceived competence at age seven. For boys, reticence at age seven negatively predicted perceived peer acceptance, perceived physical competence, perceived and cognitive competence at age seven. Further, solitary-passive withdrawal at age four positively predicted cognitive self-perceptions at age seven, and negatively predicted perceived peer acceptance and perceived physical competence at age seven.

In their study of three- and four-year-olds, Stansbury and Harris (2000) were interested in young children's stress responses to novel peer situations and if these responses were correlated to certain measures of temperament (i.e., approach, fear, shyness) using the CBQ, observed approach to peers, and self-perceived peer competence using the PSPCSA. The results were contrary to the authors' expectations; older, rather than younger, children showed greater cortisol stress responses to the novel peer interaction despite the fact that older children were rated higher by parents on approach temperament and were observed to avoid the peer situation less. The children in this study who showed a mismatch between self-perceived peer acceptance and actual behavior showed a higher cortisol stress response.

*CWS vs. CWNS*

To date, there has yet to be a scientific study specifically aimed at assessing self-perceived competence of preschoolers who stutter. There has been one study that has looked at perceived competence in teenagers who stutter (Blood, Blood, Tellis, & Gabel, 2003). This study showed that teenagers who stutter possessed poorer perceptions of their communication competence and higher apprehension about communication than their fluent peers. As was previously discussed in Chapter I, children who stutter, as a group, tend to hold more negative attitudes about speaking than their typically fluent peers. Although one's attitude about speaking is not a measure of perceived competence per se, it might be reasonable to speculate that a child's perception of his competence as a speaker is tied to his attitudes about talking. Zebrowski (2007) interpreted the present research in the area of stuttering, locus of control, perceived competence, and attitudes about speaking. Taken together, she speculated that a positive attitude about talking may serve as a buffer or moderator between a child and either his own anxious feelings about stuttering, negative reactions to his stuttering from the environment, or both.

*Summary of Competence Literature*

The development of competence – cognitive, physical, and social – is an integral part of development for all children. Research has shown that young children are able to evaluate their perceptions of their own competence, although these early opinions are typically inflated. Yet, Mantzicopoulos (2006) found that preschoolers rated their physical and cognitive competences lower than kindergartners and second graders, but their perceived peer acceptance was highest during preschool and decreased at kindergarten and second grade. It has been theorized that as children get older, their self-perceptions become more realistic representations of their true

competence. The notion that young children typically view themselves in an overly-positive light can actually be beneficial for their emotional and behavioral development; an inflated sense of ability could motivate them to achieve greater levels of mastery and growth. It may also play a protective role between negative life events and mental health (Tram & Cole, 2000).

Because it is deemed developmentally atypical to perceive one's competence realistically or negatively, several researchers have examined the behavioral correlates of negative self-perceptions. Children who have lower self-perceptions of their abilities than their peers tend to engage in more reticence and social withdrawal than their peers (Nelson et al., 2009). It has been speculated that early self-perceptions of peer acceptance, as early as age four, can influence self-perceived competence later in childhood (by age seven; Nelson, Rubin, & Fox, 2005). Therefore, this relationship appears to be a downward spiral – children with low self-perceptions engage in more nonsocial behavior, which may lead to compromised views of peer acceptance, which in turn may negatively influence one's self-perceptions.

Although no studies have specifically looked at the perceived competencies of preschoolers who stutter, it might be reasonable to speculate that children who stutter are at risk for developing comprised views of their competence and social acceptance. Since early social interactions can weigh heavily on the formation of self-perception, children who experience repeated communication failures or negative listener responses might internalize a compromised sense of self-competence because they feel inadequate in their ability to communicate.

### *Temperament*

Temperament refers to the biologically-based individual differences in reactivity and self-regulation in the domains of emotion, activity, and attention (Rothbart & Hwang, 2005).

*Reactivity* alludes to the emotional, motor, and attentional reactions that one exhibits when confronted with a stimulus; in other words, it is one's threshold for arousal. *Self-regulation* refers to the processes that allow one to control his/her reactivity, such as one's tendency to approach or withdraw from a stimulus and one's ability to control his/her actions and emotions (Rothbart, 2011). These heritable behavior traits are an important aspect of who we are because they allow us to uniquely interact with our environment. Temperament remains relatively stable over time, so measuring temperament in children can provide predictive outcomes for individuals later in life.

### *Temperament and General Competence*

Rothbart and Hwang (2005) suggest that the development of competence is driven by motivation to gain mastery of a skill, and that all composite factors of temperament (i.e., surgency, negative affectivity, effortful control) are active in the development and sustainment of motivation. *Surgency* is related to the child's approach, avoidance, interest, and persistence in pursuing designated outcomes. Individuals who are more surgent or extraverted in temperament are more prone to experience positive moods and might be more likely to experience enhanced evaluations of behavioral outcomes. *Negative affectivity* is related to frustration, anger, and sadness when the goals of a given motivation are not met. Individuals who experience a more positive affect state tend to have enhanced expectations about goals, the factors necessary to achieve those goals, and the probability of achieving those goals. Children who have difficulty regulating negative emotions are easily upset and are not as resilient as children who show more positive affectivity (Masten & Coatsworth, 1998). It is important to note that CWS, as a group, tend to show greater negative affectivity than their typically developing peers. *Effortful control*

has links to persistence, planning, flexibility of thought, and control of emotion, all of which support competence and allow motivations to be extended in time. It is also of interest to note that CWS, as a group, have been shown to have significantly lower levels of effortful control when compared to CWNS.

Self-regulation is also a critical component of developing competency. Self-regulation can be understood as having reasonable control over one's attention, emotional, and behaviors. In the first few years of life, children usually become better at redirecting their attention, which allows them to shift or focus their attention more readily or to persist in attending, skills that will help them function in a classroom or a play activity with peers. Later in development, good attention regulation has been linked to prosocial behavior and peer popularity, while difficulty regulating attention has been linked to attention deficit/hyperactivity disorder (ADHD), antisocial behavior, and academic problems (Masten & Coatsworth, 1998). Although preschool children with ADHD have been rated by their parents to be significantly more aggressive, more demanding of parental time, less socially skilled, less adaptable to change in routine, and as exhibiting more non-compliance, preschool children with ADHD tend to perceive themselves as equally competent and as socially accepted as their peers without ADHD (De Wolfe, Byrne, & Bawden, 2000). As discussed earlier, CWS as a group often differ from CWNS in that they tend to exhibit diminished ability to regulate their attention.

Research has revealed that several sub-components of temperament are significantly related to the development of one's perceived competence. Windle et al. (1986) explored the relationship between temperament, perceived competence, and depression in young adolescents. Their study revealed that perceived competence is significantly correlated to a number of factors



that constitute temperament including approach, flexibility, positive mood, high rhythmicity, high task orientation, and high resistance.

### *Temperament and Social Acceptance or Competence*

Studies by Eisenberg, Fabes, et al. (1997) and Eisenberg, Gurthrie, et al. (1997) examined the effects of regulation and emotionality on young children's social functioning. One study (Eisenberg, Fabes, et al., 1997) examined contemporaneous and longitudinal predictions of children's social functioning from emotionality and regulation (i.e., emotion regulation, emotionally driven behavior). This study revealed that high-quality social functioning was predicted by high regulation and low levels of non-constructive coping, negative emotionality, and general emotional intensity. Further, prediction of later social functioning from emotionality and regulation at age four to six years was similar to ages six to eight and eight to ten years, which suggests that emotional and regulatory processes are relatively stable over time and might have longstanding effects on their social functioning. The other study (Eisenberg, Guthrie, et al., 1997) found that the effects of individual differences in attentional regulation on social status and socially appropriate behavior were mediated by resiliency. The authors further concluded that the positive relation between attentional control and resiliency was moderated by negative affectivity, with this relationship being stronger for children high in negative affectivity. Their last finding suggested that relation between behavioral regulation and socially appropriate behavior (but not social status) was moderated by negative affectivity.

Rubin, Coplan, Fox, and Calkins (1995) examined how the constructs of emotion regulation and social interaction predicted social adaptation in preschoolers. Based on parent temperament ratings and observed free play behaviors of four-year-olds, the children were

classified as: low social interaction, good emotion regulators; low social interaction, poor emotion regulators; high social interaction, good emotion regulators; high social interaction, poor emotion regulators; or average. The results indicated that the low social interaction children who were poor regulators displayed more wary and anxious behaviors during free play and other episodes, and were rated as having more internalizing problems than both the low social interaction children who were good regulators and the average group. The high social interaction children who were poor regulators were rated as having more externalizing problems than either the high social interaction children who were good regulators or the average group. These findings together suggest that emotion dysregulation is associated with psychological maladaptation, but this association is tempered by the degree to which children engage in social interaction.

#### *CWS vs. CWNS*

There has been a recent interest in the temperamental differences between children who stutter and children who do not stutter in searching for the risk factors for the persistence of stuttering. Anderson, Pellowski, Conture, and Kelly (2003) and Karrass et al. (2005) assessed temperamental differences in CWS and CWNS using the *Behavioral Style Questionnaire* (BSQ; McDevitt & Carey, 1978), a norm-referenced parent-report questionnaire. The BSQ is rooted in the nine temperamental dimensions delineated by Thomas and Chess (1977) – activity level, adaptability, approach or withdrawal, quality of mood, intensity of reaction, distractibility, attention span/persistence, sensory threshold, and rhythmicity (regularity). Taken together, the results of these studies revealed several significant between-group differences. First, as a group, CWS were significantly more emotionally reactive than their typically fluent peers; this means

that when faced with everyday exciting, stressful, or challenging situations or stimuli, CWS were more intensely aroused than CWNS. Second, CWS as a group tended to be significantly less able to regulate their emotions; once CWS became excited or upset, they were less skillful and slower to return to a calm, relaxed state. Third, as a group, CWS had significantly poorer attention regulation than their typically fluent peers; CWS were less able to shift their focus when necessary, but were rather more fixated and less able to disengage from a present activity or stimuli when required or appropriate. Lastly, CWS tended to exhibit more irregularity in their biological functions (e.g., hunger, thirst, elimination).

Eggers, De Nil, and Van den Bergh (2010) and Embrechts, Ebben, Franke, and Van de Poel (2000) used a different parent-report temperament questionnaire called the *Children's Behavior Questionnaire–Dutch* (CBQ-D). Results revealed that CWS, as a group, scored significantly higher on the composite temperament factor of Negative Affectivity and significantly lower on the composite factor of Effortful Control. The third composite factor, Extraversion/Surgency, did not differ significantly between the two groups (Eggers et al., 2010). Analysis of the fifteen individual temperament scales indicated that CWS scored significantly lower than CWNS in inhibitory control and attentional shifting (Eggers et al., 2010), as well as perceptual sensitivity (Embrechts et al., 2000). Contrarily, CWS scored significantly higher than CWNS in motor activation and approach (Eggers et al., 2010) as well as impulsivity (Embrecht et al., 2000). Further, no significant correlation was found between temperament and duration of speech therapy or stuttering severity for the experimental group (Embrechts et al., 2010).

To investigate the emotional regulation of preschool-age CWS and CWNS, Johnson, Walden, Conture, and Karrass (2010) implemented the “disappointing gift” procedure. Findings revealed that although CWS and CWNS did not differ significantly in amount of positive

emotional expressions after receiving the desirable gift, CWS exhibited more negative emotional expressions after receiving the disappointing gift than CWNS. Further, CWS exhibited more speech disfluencies after receiving the desired gift than after receiving the disappointing gift. These results were interpreted to suggest that, in line with previous empirical studies, CWS tend to be more reactive and less capable of regulating their reactivity.

With the advent of brain imaging technology, researchers have recently been exploring the neural substrates of temperament in CWS and CWNS. Arnold, Conture, Key, and Walden (2011) used electroencephalograms (EEG) to examine the behavioral and psychophysiological correlates of emotional reactivity and regulation (two critical components of temperament) of developmental stuttering. In their study of preschool children who do and do not stutter, participants listened to brief background conversation conveying happy, neutral, and angry emotions. They were then prompted to produce a narrative based on a text-free storybook. EEG measurements during the listening task and speech disfluency during the narrative task revealed that decreased use of regulatory strategies is related to increased stuttering; however, EEG measurements of emotional reactivity and regulation in CWS compared to CWNS were not significantly different. The findings of this study imply that young children with neurocognitive sensitivities might be prone to fluency breakdown when their systems are disregulated.

### *Summary of Temperament Literature*

Temperament can be divided into three main components – surgency, negative affectivity, and effortful control. It has been speculated that all of these aspects of temperament, including self-regulation, are critical pieces of developing and maintaining motivation to become competent in a variety of skill areas (Rothbart & Hwang, 2005). However, there are specific sub-

components of temperament that have been shown to be significantly correlated with perceived general and social competence. The dimensions associated with perceived competence include approach, flexibility, positive mood, high rhythmicity, high task orientation, and high resistance (Windle et al., 1986). High social functioning seems to be predicted by high levels of self-regulation and low levels of negative affectivity and emotional intensity (Eisenberg, Fabes, et al., 1997). Interestingly, these aspects of temperament tend to differ significantly between CWS and CWNS. Parents of preschoolers who stutter tend to rate their children as exhibiting significantly higher levels of activity, are more likely to approach stimuli with greater excitement, are less flexible or adaptable when encountering stimuli, experience greater negative affectivity, are less rhythmic in their physiological functions, are less distractible, and are more impulsive when compared to children who do not stutter (Anderson et al., 2003; Karrass et al., 2005; Eggers et al., 2010; Embrechts et al., 2000; Johnson et al., 2010).

## *Language*

### *Language and General Competence*

Jambunathan and Norris (2000) examined the relation between language competence and self-perceived competence among three- and four-year-old children with no known language delays or disorders. Language competence was assessed through administration of the *Preschool Language Assessment Instrument* (PLAI) which measures receptive and expressive language needed for classroom discourse including subtests of matching perception, selective analysis of perception, reordering perception, and reasoning about perception. Results revealed a significant correlation between the reasoning about perception subscale of the PLAI with peer acceptance

and maternal acceptance. These findings suggest that adequate language competence is essential for children meta-cognitively assess their self-perceptions.

During their fifteen year longitudinal study, Hotulainen, Lappalainen, Ruoho, and Savolainen (2010) examined Finnish preschool students who had deficiencies in reading and writing readiness compared to children with typically developing skills. Partway through the study, students in the lower-skill group were found to achieve significantly lower final school grades and they also had lower perceptions of their own scholastic competence. At the completion of the study, students in the lower-skill group perceived themselves as less competent than their peers in social acceptance, global self-worth, and strength-perceptions related to mathematical thinking, learning skills, and self-regulation. The authors concluded from this study that “verbo-sensory motor status” measured at preschool had long-term effects on participants’ educational life course and global self-worth; in other words, one’s sensory motor functions influence one’s language development which in turn is a prerequisite for the development of the self.

Recently, a subtype of childhood speech delay with psychosocial involvement has been reported in the literature (Hauner, Shriberg, Kwiatkowski, & Allen, 2005). The authors interpreted their findings to indicate that approach-related or withdrawal-related negative affect, negative emotionality or mood, and decreased task persistence or attention may be risk factors for increased severity of expression of speech delay. This speaks to the involvement of temperamental qualities in language development, which in turn might influence the degree of one’s self-perceived competence.

### *Language and Social Acceptance or Competence*

Research suggests that children's linguistic competence may play a central role in establishing social acceptance. Gertner, Rice, and Hadley (1994) examined children's peer relationships in a preschool classroom attended by children with varying degrees of communication ability – children with normally developing language skills (ND), children with speech and/or language impairments (S/LI), and children learning English as a second language (ESL). They found that children in the ND group received more positive nominations by peers than children in either the S/LI or ESL groups. When the children's positive and negative nominations were combined to classify them as Liked, Disliked, Low Impact, or Mixed, the children in the ND group predominated in the Liked cell, whereas the other two groups of children fell into the Disliked or Low Impact cells.

Fujiki, Brinton, Morgan, and Hart (1999) asked teachers to rate the sociability and withdrawal of children with and without language impairment aged five to eight and 10 to 13. Teachers rated children with language impairment as displaying higher levels of reticent behavior than typically developing children. Further, children with language impairment were rated significantly below typical peers on subtypes of impulse control/likability and prosocial behavior. Interestingly, boys with language impairment were rated as displaying significantly higher levels of solitary-active withdrawal than girls with language impairment or typically developing children of either gender. The authors conclude that the relationship between language impairment and withdrawn and sociable behavior is complex; although language impairment is an important factor in social difficulty, it is not the sole factor leading to social problems in language impaired children.

In a study by Jerome, Fujiki, Brinton, and James (2002), children between the ages of six and nine with specific language impairment (SLI) did not differ significantly from their typically developing peers on measures of perceived competence and acceptance. However, children between the ages of 10 and 13 with SLI perceived themselves more negatively in scholastic competence, social acceptance, and behavioral conduct than children with typical language development. These findings corroborate the well-documented notion that younger children typically have overly-positive perceptions of themselves and their abilities.

#### *CWS vs. CWNS*

Given that language and speech fluency are developmental skills that blossom around the same time (between two to five years of age; Yairi, 1983), researchers have been devoting attention to the possible relationship between the two. In their study of diagnostic trends, Yaruss, LaSalle, and Conture (1998) found that the performance of CWS, as a group, does not reflect a normal curve for language abilities. In a normal curve, 32% of a sample population performs outside the normal range (16% above and 16% below average). In their investigation, however, 54% of CWS performed outside the normal range (25% above and 29% below average). Other research in this area has shown contradictory findings. Some have found that children who stutter have expressive language abilities at or above developmental expectations (Watkins, Yairi, & Ambrose, 1999). Others have found that some CWS exhibit comparatively lower language scores than CWNS (Murray & Reed, 1977; Ryan, 1992; Anderson & Conture 2000; Anderson, Pellowski, & Conture, 2005). The findings in the area of stuttering and language are inconsistent, but these results, taken together, suggest that language performance outside the normal range might pose a risk factor for the onset or persistence of stuttering.



*Summary of Language Literature*

One's sensory-motor abilities have been shown to influence one's language development; language, in turn, is a prerequisite for the development of the self and the meta-cognitive ability to evaluate one's self-perceptions (Jambunathan & Norris, 2000). Speech and language development may be delayed if the child exhibits certain temperamental characteristics such as negative affectivity and decreased task persistence or attention. These qualities may be risk factors for increased severity of expression of speech delay (Hauner et al., 2005). It is important to evaluate children's language development from an early age, and intervene if deemed necessary, because poor language, reading, and/or writing abilities during the preschool years have been shown to have long-term effects on individuals' education life and global self-worth (Hotulainen et al., 2010).

The language abilities of CWS appear to demonstrate both between and within group differences. Although research in the area of language and fluency has yielded inconclusive results, the findings can be interpreted to mean that language abilities outside the norm – either precocious, below average, or discrepant – may pose a risk factor for the onset or persistence of stuttering. These disparities in linguistic abilities may play a role in a child's overall sense of perceived competence regardless of speech fluency. In line with the goodness of fit framework, a child with better language skills might perceive a higher degree of competence within his/her environment, whereas a child with poorer language skills may not feel as competent in keeping up with the linguistic demands of his/her environment. The literature has shown that children with poorer language abilities than their typically developing peers are prone to having lower peer and self ratings of linguistic competence (Gertner et al., 1994). However, language

impairment appears to not be the only factor leading to social difficulties in language impaired children (Fujiki et al., 1999).

### ***Home Environment***

#### *Home Environment and General Competence*

Home chaos refers to high levels of confusion and agitation in the home, as well as to a sense of rush, disorganization, and time pressure in daily routines. Home chaos has been linked to family income and parental education, parental stress and emotional distress, parenting difficulties (especially inappropriate discipline and lack of sensitivity and responsiveness), and child behavior problems (e.g., impulsivity, conduct problems, delinquency) (see review in Dumas et al., 2005). Homes that are disorganized and unsafe and that do not offer a predictable environment rich in opportunities to learn through routines, regularities, and rituals, as well as homes that are characterized by high levels of noise and crowding, generally limit a child's adjustment. Based on various parent- and child-report measures, the results of Dumas et al.'s study (2005) of preschool children revealed that home chaos was associated with a) less effective parental discipline, b) elevated behavior problems, limited attentional focusing, and reduced ability to understand and respond to social cues in children, and c) reduced accuracy and efficiency in a cooperative parent-child interactional task.

Vondra, Barnett, and Cicchetti (1990) investigated the role of home environment, self-concept, and mastery motivation in the development of cognitive and scholastic functioning. Preschoolers and their mothers were recruited from three different family backgrounds – low-income maltreating, low-income comparison, and middle-income comparison. The findings from the study indicated that children from maltreating families scored lower than their non-

maltreated peers on measures of cognitive and physical competence and on ratings of motivation, but rated themselves higher on measures of physical competence, cognitive competence, and peer acceptance than their low-income comparison peers. The overall difference in developmental quality of the home environment of maltreating families was largely accounted for by socioeconomic status (SES); when SES was controlled for, these homes tended to be significantly less clean and safe. The authors discussed that while general home environment may affect competence, relationship factors implicated in maltreatment may be more important in shaping self-concept and motivation.

In their study of over 4,000 adolescents between ages 14 and 18 years, Lamborn, Mounts, Steinberg, and Dornbusch (1991) examined parenting styles and its relation to psychosocial development (i.e., social competence, work orientation, and self-reliance), school achievement (i.e., grade point average, academic competence, and orientation toward school), internalized distress, and problem behavior (i.e., drug and alcohol use, school misconduct, and delinquency). The findings indicated that adolescents who characterized their parents as authoritative scored highest on measures of psychosocial competence and lowest on measures of psychological and behavioral dysfunction; the reverse was true for adolescents who described their parents as neglectful. Adolescents whose parents were characterized as authoritarian scored reasonably well on measures of obedience and conforming to adult standards, but had relatively poorer self-conceptions than other adolescents. Contrarily, adolescents from indulgent homes showed a strong sense of self-confidence, but reported a higher frequency of substance abuse and school misconduct and were less engaged in school.

### *Home Environment and Social Acceptance or Competence*

To a large degree, the manner in which a child deals with the social world is shaped in the context of close interpersonal relationships that happen early in life. Early socialization typically occurs in two stages. In the first stage, parents and other adult caregivers teach children basic social and self-regulatory skills; these relationships have been described as “vertical” and unequal because adults use their authority and knowledge to shape children’s behavior. In the second stage, children form social relationships with peers; these relationships have been described as “horizontal” and equal because children interact with peers who have approximately the same knowledge and power (Travillion & Snyder, 1993). Both of these stages are integral to successful socialization and development of social competence. Social competence has been suggested to serve a protective function in emotional functioning and may compensate for some harmful experiences (e.g., impact of poverty).

Several predictors of children’s social competence have been speculated in the literature regarding home environment and caregiver-child interactions. McDowell and Parke (2009) found that parent-child interaction, parent advice giving, and parental provision of opportunities by both mothers and fathers were most predictive of children’s social competence and, in turn, social acceptance one year later of the fourth graders in their study. Keltner (1990) found that for preschoolers enrolled in a Head Start program, adherence to family routines and older fathers were significant predictors of preschool social competence rated by teachers, while home environment, mother’s age, and extended family residing in the home did not account for significant variance in social competence.

Positive characteristics of child-caregiver interactions can also serve as a buffer between a child and the risks of poor peer interactions. Patterson, Cohn, and Kao (1989) found that high

maternal warmth served as a protective factor against adjustment difficulties associated with peer rejection in first grade children. Rejected children whose mothers were observed to be warm and accepting in interacting with them were rated by teachers as having fewer behavior problems at school than rejected children whose mothers were low in warmth. Also, rejected children whose mothers were low in warmth showed a significant tendency to overestimate their cognitive competence and their social acceptance by peers, whereas rejected children with more accepting mothers did not. Given this finding, the authors suggest that maternal warmth may protect rejected children against the risk of developing unrealistic views of themselves.

Certain behaviors that children exhibit can be suggestive of social *incompetence*; these might include aggressive behavior (verbal and/or nonverbal, noncompliance, misuse of property, and social inhibition. Travillion and Snyder (1993) state that appropriate discipline and maternal involvement are early family socialization practices that are prerequisite to developing competent social behavior. In their study, poor maternal discipline, as evidenced by behavioral expectations below the child's developmental status and by the use of harsh verbal and physical punishment, was associated with aggressive behavior in children aged four to five and ultimately rejection in the peer setting (Travillion & Snyder, 1993).

#### *CWS vs. CWNS*

The home environment of young children who stutter has played a central role in theory, research, and clinical intervention with early childhood stuttering. More than fifty years of home environment research has yielded differing interpretations and conflicting results, which makes it challenging to draw definitive conclusions. It might also be difficult to obtain data about the home environments of preschoolers who stutter because most of these children will

spontaneously recover from stuttering and these parents might be less distinguishable from parents of normally speaking children (Yairi, 1997).

During the mid twentieth century, researchers generally thought that children who stutter, as a group, were subject to more adverse parental pressures and negative attitudes than control group children; these parental behavior patterns included dominance, overprotection, high expectations, and perfectionism in child rearing, as well as feelings of rejection and undesirable evaluations of the child's personality (Johnson, 1942). There were also reports that children who stutter were more frequently raised in less harmonious, more socially withdrawn families that take less time to enjoy each other's companionship than children who do not stutter (Johnson et al., 1959; Andrews & Harris; 1964). Further, there were repeated indications that parents of children who stutter tend to have heightened anxiety levels than parents of children who do not stutter (Zenner, Ritterman, Bowen, & Gronhovd, 1978; Fluegel, 1979). One should interpret the conclusions from these older studies with caution given that the research designs tended to be weak or flawed (Yairi, 1997).

Although Zackheim and Conture (2003) suggest that in a fast-paced, high-pressure home environment, CWS might feel greater communicative pressure to speak quickly or produce adult-like language, present day literature regarding home environment and parent interaction styles observed in CWS and their fluent peers suggests that there are no substantive differences between the two groups (Hall, Wagovich, & Bernstein Ratner, 2007). Kelly and Conture (1992) investigated the speaking rates, interrupting behaviors, and response time latencies produced by CWS and CWNS and their mothers, and the relationships that these three paralinguistic behaviors have on children's speech disfluencies. No significant differences were found between the two groups of children or between the two groups of mothers for any of the three

paralinguistic behaviors, with the exception that the mothers of the CWNS exhibited significantly faster rates of speech than either group of children. Weiss and Zebrowski (1991) studied the conversational environments that parents provide their young children who do and do not stutter with regard to their assertiveness and responsiveness. The findings revealed that parents in both groups did not differ significantly in terms of their assertiveness or responsiveness ratios. Other studies have shown that familial characteristics, such as socioeconomic background, family size, and sibling order do not seem to have strong relations to stuttering.

#### *Summary of Home Environment Literature*

The literature regarding home environment and the development of self-perceptions reveal several interesting relationships. It appears that parenting styles (Lamborn et al., 1991), home confusion and disorganization (Dumas et al., 2005), and socioeconomic status (Vondra et al., 1990) play important roles in a child's development of perceived general and social competence. Children's psychosocial adjustment is promoted through predictable environments that are rich in opportunities to learn through routines, regularities, and rituals, as well as homes that are characterized by low levels of noise and crowding, and authoritative parenting styles (Keltner, 1990; Dumas et al., 2005; Lamborn et al., 1991). Parent-child interaction, parent advice giving, and parental provision of opportunities are some of the predictors for social competence and subsequent social acceptance (McDowell & Parke, 2009). Historically, the home environments of CWS were thought to be more chaotic and pressure inducing than CWNS, and that parents of CWS were more anxious and perfectionistic. However, present day research has debunked these hypotheses and have shown that the home environments and parent-child

interactions of CWS do not differ significantly from CWNS with regard to speaking rates, interrupting behaviors, response time latencies, assertiveness, or responsiveness (Kelly & Conture, 1992; Weiss & Zebrowski, 1991).

***Statement of the Problem  
& Purpose of the Present Study***

Given this review of the literature of perceived and actual competence and social acceptance, it is hypothesized that CWS will exhibit lower self-perceived competence and social acceptance than their typically developing peers. Social interaction has long been believed to weigh heavily on the formation of self-perception in that children's self-esteem is shaped by early experiences and interactions (Nelson et al., 2009; Coplan et al., 2004). Therefore, if their attempts to communicate are not well received by their family and/or peers, children who stutter may feel that their capability to communicate effectively does not match the demands of the environment or the ability level of their communication partners. It is possible that children who stutter internalize lower self-perceptions due to these repeated communicative failures. Hence, there are two research questions at hand: 1) do young children who stutter differ in their perceived general competence and/or perceived social acceptance from young children who do not stutter?; and 2) what child characteristic predicts his/her perceived general competence and perceived social acceptance the most – speech fluency, certain aspects of one's temperament (i.e., surgency, negative affectivity, effortful control), expressive language abilities, receptive language abilities, or home confusion and disorganization?



## CHAPTER III METHODOLOGY

### *Procedures*

The data for this study were previously collected between 2000-2004 in a collaborative, longitudinal study between the University of Iowa and the University of Illinois. Participants were invited to partake in a study investigating the differentiating characteristics between CWS and CWNS. The participants who were recruited in the Iowa City, IA area came to the Stuttering Lab at the Wendell Johnson Speech and Hearing Clinic on several occasions – twice within the first year of their participation and once per year after that. During these visits, a conversational speech sample was recorded as the child engaged in unstructured play or conversation with a trained clinician. Then, measures of language, speech function, and perceived competence were administered to the child. Meanwhile, the caregiver was asked to complete several questionnaires regarding the child's developmental and social history, temperament, and home environment.

A certified speech-language pathologist and/or a graduate student clinician trained in the assessment of stuttering administered all assessments, both formal and informal, and participated in the clinician-child interaction. All data collection sessions began with the clinician-child interaction, followed by the administration of the aforementioned standardized tests (i.e., PSPCSA, PPVT-III, EVT, TELD-III, HAPP-3). All sessions were videotaped for later coding.

### *Participants*

For the present study, data were collected from 32 participants – 16 CWS and 16 CWNS. Both groups included nine boys and seven girls. The average age of the CWS was 59 months

(SD=5.99; range=53-70). The average age of the CWNS was 57 months (SD=6.16; range=48-69). All participants were native English speakers recruited from the Iowa City, IA area. The data from these particular subjects were taken from the larger pool of subjects from the earlier study. These particular subjects were chosen to be included in the present study if (a) their age was in the range that the PSPCSA measure was normed on (4 to 7 years), and (b) at that particular visit, the subject had completed all of the outcome measures of interest.

The inclusionary criteria for the experimental (stuttering) group for the earlier, larger study and thus of the present study mirrored those put forth by Yairi and Ambrose (1999): (a) age 6 or younger; (b) regarded by their parents as having a stuttering problem; (c) regarded by two investigators as having a stuttering problem; (d) stuttering severity rated by parents or the two experimenters as 2 or higher on an 8-point severity scale (0 = normal to 7 = very severe); (e) exhibiting at least three stuttering-like disfluencies (SLDs include part-word repetition, monosyllabic word repetition, and disrhythmic phonation) per 100 syllables of spontaneous speech; and (f) no obvious neurologic disorders or abnormalities. The average stuttering severity of participants in the experimental group was 2.22 (SD=1.40; range=0.33-4.83; see Figure 1 for distribution of stuttering severity across CWS; see Appendix A for how stuttering severity was calculated). The average time since onset for the CWS was 27 months (SD=7.60; range=12-43). Except for stuttering in the experimental group, none of the participants' parents reported any other speech, language, or hearing problems. See Tables 1 and 2 for participant characteristics.

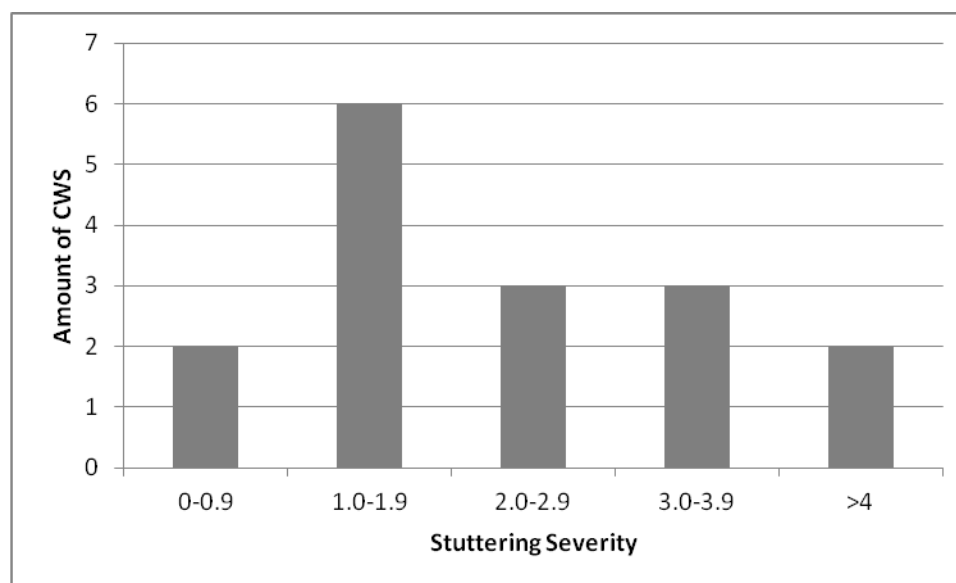
Table 1. CWS characteristics

<i>Subject ID</i>	<i>Sex</i>	<i>Age (months)</i>	<i>Visit #</i>	<i>Stuttering Severity</i>	<i>Time Since Onset (months)</i>	<i>PPVT-III</i>	<i>EVT</i>	<i>TELD-III Receptive</i>	<i>TELD-III Expressive</i>	<i>HAPP-3</i>	<i>CBQ: Surgency</i>	<i>CBQ: Negative Affectivity</i>	<i>CBQ: Effortful Control</i>	<i>CHAOS</i>
Z002	M	53	1	0.67	34	112	111	125	112	7.1	5.53	3.96	5.95	20
Z004	M	70	1	3.50	34	98	104	100	88	2.5	3.14	3.29	6.12	39
Z005	M	68	1	3.17	32	110	101	105	91	10.7	4.70	4.61	4.50	25
Z006	M	55	3	1.00	17	104	106	108	107	0	4.72	4.46	5.03	41
Z017	M	55	3	4.66	17	115	107	116	85	4.3	5.66	4.89	5.67	35
Z019	F	55	3	1.00	31	123	128	108	115	1.3	5.08	3.29	4.31	29
Z021	F	57	3	1.00	25	121	105	122	115	3.8	5.03	3.73	5.06	32
Z023	M	65	3	1.66	24	123	120	115	115	1.6	3.90	4.04	5.20	29
Z025	M	54	3	3.58	30	107	127	113	107	3.5	4.32	3.22	5.87	42
Z029	F	69	3	0.33	43	120	121	118	115	0.7	3.86	3.06	5.88	40
Z032	F	58	1	4.83	30	114	97	98	94	10.0	3.55	5.95	5.08	45
Z043	F	56	1	2.30	24	121	136	119	124	3.9	5.23	4.01	5.44	35
Z045	M	59	5	1.33	28	114	112	119	107	0	3.94	3.87	5.47	24
Z046	F	63	3	2.00	25	102	93	93	85	9.0	3.93	2.91	6.29	22
Z048	M	54	3	2.00	12	115	111	98	97	13.8	4.81	4.43	5.08	39
Z053	F	55	5	1.33	28	116	125	116	124	0	5.24	3.33	5.49	31
<i>Mean</i>		59		2.22	27	113	113	111	105	4.51	4.54	3.94	5.40	33
<i>SD</i>		5.99		1.40	7.60	7.60	12.23	9.66	13.30	4.34	0.75	0.80	0.56	7.70

Table 2. CWNS characteristics

<i>Subject ID</i>	<i>Sex</i>	<i>Age (months)</i>	<i>Visit #</i>	<i>PPVT-III</i>	<i>EVT</i>	<i>TELD-III Receptive</i>	<i>TELD-III Expressive</i>	<i>HAPP-3</i>	<i>CBQ: Surgency</i>	<i>CBQ: Negative Affectivity</i>	<i>CBQ: Effortful Control</i>	<i>CHAOS</i>
Z007	F	67	3	134	115	110	88	0	4.36	3.69	4.98	21
Z008	M	69	5	142	133	110	100	0.5	5.11	4.49	4.89	29
Z011	F	55	3	115	120	125	115	0	5.02	2.93	6.34	23
Z012	M	53	5	125	136	119	118	4.2	3.64	3.48	5.50	29
Z013	F	61	1	114	113	117	129	0.5	4.79	3.21	5.16	35
Z018	M	54	3	107	120	116	107	7.9	3.63	5.54	4.76	34
Z020	M	68	5	114	108	110	85	1.5	5.56	3.43	4.51	39
Z024	F	57	5	120	124	125	127	3.7	4.01	4.63	5.29	32
Z026	F	56	5	117	119	128	121	6.5	3.75	4.62	6.64	29
Z027	M	56	5	103	116	125	118	0.8	5.53	4.97	4.00	34
Z040	F	52	5	103	103	98	121	7.5	3.84	4.73	6.26	15
Z041	M	52	5	93	95	95	88	17.3	4.81	3.67	5.10	15
Z044	F	55	5	104	110	116	102	0	4.69	3.13	4.27	31
Z049	M	61	5	118	103	120	94	20.0	5.38	4.50	4.78	36
Z054	M	54	5	120	121	119	118	0	4.79	2.88	5.17	31
Z057	M	48	5	117	134	122	118	0	4.62	2.03	6.59	30
<i>Mean</i>		57		115	117	116	109	4	4.59	3.87	5.26	29
<i>SD</i>		6.16		12.15	11.60	9.42	14.58	6.25	0.66	0.94	0.81	7.05

Figure 1. Distribution of stuttering severity in CWS participants



### *Measures*

#### *Perceived Competence & Social Acceptance*

To assess self-perceived competence and social acceptance of the participants, the *Pictorial Scale of Perceived Competence and Social Acceptance for Young Children* was administered (PSPCSA; Harter & Pike, 1984). The content of the measure is divided into four domains – cognitive competence (e.g., counting, knowing the alphabet), physical competence (e.g., running, skipping), peer acceptance (e.g., has many friends to play games with), and maternal acceptance (e.g., mom cooks child’s favorite foods). The first two domains comprise general competence and the latter two domains make up social competence. The authors explain that the PSPCSA should be interpreted as a measure of two separate constructs (general competence and social competence) rather than a singular measure of self-concept or self-esteem.

This instrument is comprised of 24 picture plates that are presented to the child. Each picture plate shows a gender-matched child being successful at an activity, and unsuccessful at the same activity in each of the four domains. The child is asked to indicate which child he/she is most like. The child is then asked if they are “a little bit like that child” or “a lot like that child.” Each item is scored on a four-point scale, a score of four indicating that the child feels most competent or accepted and a score of one indicating that the child feels least competent or accepted. Item scores are then averaged across the six items for a given subscale so that a value between one and four is assigned for cognitive competence, physical competence, peer acceptance, and maternal acceptance. To generate a score for the construct of general competence, the scores for the cognitive competence and physical competence domains are averaged. Similarly, to obtain a score for social acceptance, the scores for the peer acceptance and maternal acceptance domains are averaged (Coplan et al., 2004). See Appendix B for an outline of the PSPCSA on the items.

Harter and Pike (1984) provided indications of convergent, discriminant, and predictive validity of the PSPCSA. For example, convergent validity was assessed by asking children, “How do you know you are good/not good at this activity?” Results indicated that children could provide very definite reasons for their reported competencies. As an example of discriminant validity, when the perceived cognitive competencies of children who had been held back a year in school were compared to children who had skipped a year in school, findings revealed that children who had been held back a year had significantly lower self-perceptions of cognitive competence. For predictive validity, children’s perceived cognitive competence was predictive of the level of difficulty on a behavioral task (i.e., puzzles varying in difficulty level) that the child chose to engage in.

Harter and Pike (1984) also reported the factor structure of their measure in a sample of 255 children aged four to seven years. Findings indicated a two-factor solution in which the cognitive and physical competence subscales were combined to form a factor of “general competence,” and the peer and maternal acceptance subscales were combined to form a factor of “social acceptance.” The reliability coefficient was .67 for cognitive competence, .62 for physical competence, .74 for peer acceptance, and .83 for maternal acceptance. When combined, the general competence factor had a Cronbach’s alpha of .76, and the social acceptance factor had a Cronbach’s alpha of .87. The reliability of the total scale (all 24 items), was .88 for the preschoolers and kindergarteners and .87 for the first and second graders.

### *Temperament*

A temperament profile of each child was obtained by use of the short form of the *Children’s Behavioral Questionnaire* (CBQ-SF; Putnam & Rothbart, 2006). This is a parent-report measure of temperament for children between ages three and eight. This measure contains 94 items presented as Likert-type scales. The mother is asked to rate how true each statement is for her child on a scale of one to seven, one being “extremely untrue of your child” and seven being “extremely true of your child.” There is also a “not applicable” option that the parent can select if the child has not been observed in the given situation. Each statement assesses the child’s tendencies in one of the following areas: activity level; anger/frustration; approach/positive anticipation; attentional focusing; discomfort; falling reactivity/soothability; fear; high intensity pleasure; impulsivity; inhibitory control; low intensity pleasure; perceptual sensitivity; sadness; shyness; and smiling and laughter (see Appendix C for descriptions of these subscales). These values of the fifteen subscales are then grouped to obtain the “Big 3”

composite factors – surgency, negative affectivity, and effortful control. Surgency refers to the tendency of an individual to present with a great overall energy level, including the subscales of activity level, high intensity pleasure, impulsivity, and (lack of) shyness. Negative affectivity refers to the likelihood that an individual will react to situations with negative emotional states, including the subscales of anger, fear, sadness, discomfort, and unsoothability. Effortful control refers to the efficiency of executive attention, including the ability to inhibit a dominant response and/or to activate a subdominant response, to plan, and to detect errors; this factor includes the subscales of inhibitory control, attentional focusing, low intensity pleasure, and perceptual sensitivity.

Putnam and Rothbart (2006) reported on internal consistency, interrater reliability, longitudinal stability, and correlations between the standard and short-form CBQ scales from data gathered from 590 predominantly Caucasian children of middle to high socioeconomic status. For internal consistency, 11 of the 15 subscales achieved alpha coefficients ( $\alpha$ ) over .70, while all 15 subscales achieved  $\alpha$  greater .60. Alphas for the Surgency, Negative Affectivity, and Effortful Control composite factors were .75, .72, and .74 respectively. These results indicate that the short form has satisfactory internal consistency. Significant interrater reliability coefficients measured from retest at 45 months later ranged from .26 to .59 for 14 of the 15 subscales ( $p < .05$ ). Significant rank order stability coefficients ranged from .53 to .80 for the 15 subscales ( $p < .01$ ). Correlation between the standard form and the short-form of the CBQ was also shown to be satisfactory, with corrected correlation coefficients ( $r$ ) above .70 for 12 of the 15 subscales, while all 15 subscales achieved  $r$  greater than .60. Corrected correlation coefficients for Surgency, Negative Affectivity, and Effortful Control were .83, .75, and .83, respectively.



### *Stuttering Severity*

For the CWS, stuttering severity was assessed off-line by a trained researcher using a recorded conversational speech sample of at least 300 syllables. The researcher assigned a value of 0-6 on measures of (1) amount of stuttering-like disfluencies per 100 words, (2) duration of stuttering-like disfluencies, and (3) observable physical tension. The three values were then averaged to obtain a number indicating the child's stuttering severity. Stuttering severity was not calculated for the CWNS. See Appendix A for a detailed outline of how stuttering severity was calculated.

### *Receptive Language*

A composite score of receptive language was gathered by collapsing the child's scores measures of receptive vocabulary and receptive language. The *Peabody Picture Vocabulary Test – Third Edition* (PPVT-III; Dunn & Dunn, 1997) assesses one's receptive vocabulary abilities. The Receptive Language Subtest of the *Test of Early Language Development – Third Edition* (TELD-3; Hresso, Reid, & Hammill, 1999) measures the child's ability to understand what is said to him/her by exploring his/her receptive syntactic, morphological, and vocabulary abilities. Each child's standard scores on the PPVT-III and Receptive Language Subtest of the TELD-3 were converted into z-scores and then collapsed to compute one composite score of receptive language.

### *Expressive Language*

A composite score of expressive language was gathered by collapsing the child's scores on measures of expressive vocabulary, language construction, and phonology. The *Expressive*

*Vocabulary Test* (EVT; Williams, 1997) examines expressive vocabulary through labeling and synonyms. The Expressive Language Subtest of the TELD-3 measures the child's ability to produce meaningful speech through use of syntax, morphology, and expressive vocabulary. The *Hodson Assessment of Phonological Patterns – Third Edition* (HAPP-3; Hodson, 2004) assesses any phonological deviations the child might exhibit. Each child's standard score on the EVT, standard score on the Expressive Language Subtest of the TELD-3, and Phonological Deviations Average (PDA) score on the HAPP-3 were converted into z-scores and then combined to compute one composite score of expressive language for each child.

#### *Home Confusion and Disorganization*

The *Confusion, Hubbub, and Order Scale* (CHAOS; Matheny, Wachs, Ludwig, & Phillips, 1995) is used to examine the extent to which the daily home atmosphere is characterized by lack of routine, confusion, and noise. This parent-report measure contains 15 statements regarding the child's home environment. Seven items reflect routines and organization (e.g., "First thing in the day, we have a regular routine at home") and eight items reflect disorganization, confusion, and noise (e.g., "It's a real zoo in our home"). The mother rates how much like her home the statement is on a scale of one to four, whereby one is "very much like your own home" and four is "not at all like your own home." The routines and organization items require reverse scoring. Once the questionnaire is completed, the scores are summed to obtain a total score between 0 and 60. The total score reflects the extent of home chaos, with higher scores representing more chaotic, disorganized, and hurried characteristics of the home.

Matheny et al. (1995) provide preliminary evidence for the validity and reliability of the scale in terms of correlations with observational measures of home disorganization and

parenting, internal consistency (Cronbach's  $\alpha = .79$ ), and 12-month test-retest reliability ( $r = .74$ ). They also showed that CHAOS scores were associated to some extent with family socioeconomic status but that the scale measured differences in home environments that could not be explained solely in terms of sociodemographic differences.

### *Data Analyses*

#### *Research Question 1: Between Group Comparisons*

For both groups, descriptive measures of central tendency (mean) and dispersion (standard deviation) were calculated for all the dependent variables. This included scores of perceived general competence, perceived social acceptance, stuttering severity, the "Big 3" composite factors of temperament (i.e., surgency, negative affectivity, effortful control), CHAOS, HAPP-3, and standard scores on the PPVT-III, EVT, TELD-III Receptive, and TELD-III Expressive. Group membership was considered the independent variable.

A multivariate analysis of variance (MANOVA) was used to assess between-group differences for the eight dependent variables (i.e., general competence, social acceptance, receptive language, expressive language, surgency, negative affectivity, effortful control, CHAOS). A t-test was then performed to determine whether the means of the two PSPCSA components between the two groups differ significantly from one another, or the degree to which the difference in means are due to chance. When looking at the differences between scores for the two groups, the means are evaluated relative to the spread or variability of their scores. This step was taken to verify the results of the MANOVA regarding the PSPCSA scores.

*Research Question 2: Predictors of PSPCSA Scores*

A linear regression analysis was used to explore which two-factor model was most predictive of perceived competence and social acceptance. Regression analyses relate two or more naturally occurring independent variables (i.e., not experimentally controlled) to a dependent variable by explaining variation in the dependent variable by one or more of the independent variables. Because correlations among independent variables cause the regression estimates to change depending on which independent variables are used, a backward stepwise regression analysis was implemented. A backward stepwise regression begins by entering all the independent variables into the model. One by one, the least significant independent variable (the one with the highest p-value) is removed and the regression is re-calculated. This procedure is then repeated until only useful predictor (independent) variables remain in the model.

The data were entered into four separate backward linear regression analyses. Two analyses included all subjects (one looking at perceived general competence and the other looking at perceived social acceptance). The other two analyses included only CWS (one looking at perceived general competence and the other looking at perceived social acceptance). This separation of subjects was deemed important because the CWNS did not have values for stuttering severity or time since onset; therefore, those variables could not be included in the model that looked at which factors predict perceived general competence and perceived social acceptance. Since stuttering severity and time since onset were important variables to consider in the two outcome measures of interest, separate regression analyses were run with only the CWS.

## CHAPTER IV RESULTS

### *Between Group Differences*

#### *Perceived General Competence and Social Acceptance*

The first hypothesis proposed that CWS would score lower on perceived general competence and social acceptance than CWNS. The descriptive statistics support this hypothesis, but the t-test proves that the differences between the groups are not significant. The descriptive statistics of the PSPCSA scores, outlined in Table 3, reveal that CWS consistently scored lower than CWNS on all component and composite scores of the PSPCSA. However, these differences were minimal. Similar to the findings of Harter and Pike (1984), the data were skewed in the direction of positive judgments, reflecting the tendency for young children to report relatively positive feelings of competence and social acceptance.

Table 3. Mean scores (standard deviations) of component and composite PSPCSA scores

<i>PSPCSA Component</i>	<i>CWS</i>	<i>CWNS</i>	<i>PSPCSA Composite</i>	<i>CWS</i>	<i>CWNS</i>
Cognitive Competence	3.48 (0.52)	3.60 (0.31)	General Competence	3.31 (0.50)	3.44 (0.35)
Physical Competence	3.15 (0.56)	3.27 (0.55)			
Peer Acceptance	3.08 (0.71)	3.13 (0.34)	Social Acceptance	3.14 (0.61)	3.24 (0.35)
Maternal Acceptance	3.19 (0.65)	3.34 (0.42)			

The t-test revealed that CWS and CWNS did not differ significantly in either self-perceived general competence,  $t(30) = -0.831, p = 0.413$ , or perceived social acceptance,  $t(23.75) = -0.575, p = 0.570$ . Therefore, the alternative hypothesis (i.e., CWS would have lower perceived general competence and social acceptance) was not supported by the findings, and the null hypothesis (i.e., CWS and CWNS would not differ in their scores of perceived general competence and social acceptance) cannot be rejected.

### *Other Outcome Measures*

As seen in Table 4, CWS and CWNS scored comparably across all measures, except for stuttering severity and time since onset, which were not applicable to the CWNS group. Although the descriptive differences between the two groups are minimal, CWS as a group scored poorer on receptive language (PPVT-III and TELD-Receptive), expressive language (EVT, TELD-Expressive, and HAPP-3 [higher score on the HAPP-3 means that more phonological processes are present]), surgency, and home confusion and disorganization. Contrarily, CWS as a group scored higher on the temperamental measures of negative affectivity and effortful control.

A multivariate analysis of variation (MANOVA) was used to determine whether there was any significant difference between the CWS and CWNS on the any of the outcome variables. Group affiliation was considered the independent variable, and all the other measures were considered the dependent variables. A MANOVA is unique in that it takes into account the intercorrelations among the dependent variables. A one-way MANOVA revealed no significant multivariate effect for group membership, Wilks'  $\lambda = 0.841, F(11, 20) = 0.343, p = 0.964$ .

Table 4. Mean scores (standard deviations) of other outcome measures

<b>Outcome Measures</b>	<b>CWS</b>	<b>CWNS</b>
PPVT-III <sup>a</sup>	113 (7.60)	115 (12.15)
EVT <sup>a</sup>	113 (12.23)	117 (11.60)
TELD-Receptive <sup>a</sup>	111 (9.66)	116 (9.42)
TELD-Expressive <sup>a</sup>	105 (13.30)	109 (14.58)
HAPP-3 <sup>b</sup>	4.51 (4.34)	4.00 (6.25)
Surgency (CBQ) <sup>c</sup>	4.54 (0.75)	4.59 (0.66)
Negative Affectivity (CBQ) <sup>c</sup>	3.94 (0.80)	3.87 (0.94)
Effortful Control (CBQ) <sup>c</sup>	5.40 (0.56)	5.26 (0.81)
CHAOS <sup>d</sup>	33 (7.70)	29 (7.05)
Stuttering Severity <sup>e</sup>	2.22 (1.40)	---
Time Since Onset (months)	27 (7.60)	---

<sup>a</sup> Average standard score is 100 (15)

<sup>b</sup> Phonological Deviation Average can range from 0-60+; higher score means more phonological processes present

<sup>c</sup> Mean score can range from 0-6; higher score means that construct is more characteristic of the individual/group

<sup>d</sup> Mean score can range from 0-60; higher score means more home confusion and disorganization

<sup>e</sup> Mean score can range from 0-6; higher score means greater severity

### ***Child Characteristics that Predict PSPCSA Scores***

The second research question explores which child characteristic predicts perceived general competence and social acceptance the most. The possible predictors included a composite score of receptive language, a composite score of expressive language, three components of temperament (i.e., surgency, negative affectivity, effortful control), home confusion and disorganization, severity of stuttering, and time since onset of stuttering.

*Perceived General Competence – CWS and CWNS*

The independent variables that were entered into the first backward linear regression included the receptive language composite, the expressive language composite, CHAOS, surgency, negative affectivity, and effortful control. The results indicate that a two-factor model including surgency and negative affectivity approached significance for being the most predictive of perceived general competence in CWS and CWNS,  $F_{2,29} = 2.951$ ,  $p = 0.068$ , adjusted  $R^2 = 0.112$  (see Table 5). This means that surgency and negative affectivity best explain 11.2% of the variance in perceived general competence.

Table 5. Most predictive variables of perceived general competence in CWS and CWNS

<b>Predictor Variable</b>	<b>Beta</b>	<b><i>p</i></b>
Surgency	-0.311	0.077
Negative Affectivity	-0.296	0.092

*Perceived General Competence – CWS Only*

The independent variables that were entered into the second backward linear regression included stuttering severity and time since onset in addition to the six that were previously mentioned. The results indicate that a four-factor model including surgency, expressive language, negative affectivity, and time since onset was closest to reaching significance for predicting perceived general competence in CWS only,  $F_{4,11} = 2.941$ ,  $p = 0.070$ , adjusted  $R^2 = 0.341$ . However, one should be cautious when including many variables in a model with such a low number of subjects unless the independent variables prove to be highly predictive of the dependent variable, which these do not. Therefore, the next most predictive model for perceived



general competence in CWS was a two-factor model including surgency and expressive language,  $F_{2,13} = 2.484$ ,  $p = 0.122$ , adjusted  $R^2 = 0.165$  (see Table 6). This means that surgency and expressive language together explains 16.5% of the variance in perceived general competence in CWS, although this two factor model did not reach significance.

Table 6. Most predictive variables of perceived general competence in CWS

<b>Predictor Variable</b>	<b>Beta</b>	<b><i>p</i></b>
Surgency	-0.515	0.071
Expressive Language	0.467	0.097

*Perceived Social Acceptance – All Subjects*

The independent variables that were entered into the third backward linear regression were the same ones as listed in the first linear regression (*Perceived General Competence – CWS and CWNS*). The results indicate that a two-factor model including negative affectivity and receptive language was most predictive of perceived social acceptance in CWS and CWNS, although this relationship did not reach significance,  $F_{2,29} = 2.178$ ,  $p = 0.131$ , adjusted  $R^2 = 0.071$  (see Table 7). This means that negative affectivity and receptive language can explain 7.1% of the variance in perceived general competence.

Table 7. Most predictive variables of perceived social acceptance in CWS and CWNS

<b>Predictor Variable</b>	<b>Beta</b>	<b><i>p</i></b>
Negative Affectivity	0.221	0.212
Receptive Language	-0.272	0.127

*Perceived Social Acceptance – CWS Only*

The independent variables that were entered into the fourth backward linear regression were the same as the ones listed in the second linear regression (*Perceived General Competence – CWS Only*). The results indicate that a four-factor model including surgency, negative affectivity, receptive language, and stuttering severity was most predictive of perceived social acceptance in CWS only,  $F_{4,11} = 2.342$ ,  $p = 0.119$ , adjusted  $R^2 = 0.264$ . However, as previously explained, one should be circumspect in including many factors into a predictive model when the sample size is modest. Therefore, the next most predictive model for predicting perceived social acceptance in CWS was a two-factor model including receptive language and stuttering severity,  $F_{2,13} = 2.176$ ,  $p = 0.153$ , adjusted  $R^2 = 0.136$  (see Table 8). This means that receptive language and stuttering severity can explain 13.6% of the variance in perceived general competence in CWS, although this relationship did not reach significance.

Table 8. Most predictive variables of perceived social acceptance in CWS

<b>Predictor Variable</b>	<b>Beta</b>	<b><i>p</i></b>
Receptive Language	-0.507	0.079
Stuttering Severity	-0.421	0.137

## CHAPTER V DISCUSSION

The purpose of this study was to explore the concept of self-perceived competence and social acceptance in children who stutter. The first research question assessed whether there were any significant differences in measures of perceived competence and social acceptance between CWS and CWNS. It was hypothesized that CWS would have lower perceptions of their competence and social acceptance that were related to their stuttering and general difficulty orally communicating. Further, young children who stutter have the capacity to be aware of their own and others' disfluent speech, and this awareness may result in negative attitudes about their speaking abilities.

Results of the MANOVA and t-test revealed that CWS did not differ significantly from CWNS in perceived general competence or perceived social acceptance, although the descriptive statistics show that CWS did score slightly lower than CWNS on all components of the PSPCSA. These findings may be explained, in part, by factors related to the ages and developmental skill levels of the children who participated in this study. For example, Harter and Pike (1984) observed that young, preschool-aged children, tend to exhibit an overly positive perception of their competence and social acceptance, a finding that has been corroborated by a number of other researchers. This is reinforced by the fact that preschoolers often receive overwhelmingly positive feedback from their caregivers. Mantzicopoulos (2006) explains that "self-perceptions of competence are belief systems, best represented as multidimensional constructs that become more clearly differentiated with age" (p. 291). For preschoolers, this differentiation is less clear. The inflated self-perceptions of early childhood tend to match the cognitive abilities of young children and their early socialization practices (Harter, 1986). Children become more accurate in

judging their abilities, such as those in information processing, memory, language, and perspective-taking, as their cognitive skills develop over time. As children enter elementary and middle school, caregiver and teacher feedback becomes more specific to children's individual accomplishments (Mantzicopoulos, 2006).

The second question examined which child and/or environmental factor best predicted perceived general competence and perceived social acceptance for the children in the study. These included receptive language, expressive language, home confusion and disorganization, and three main composite factors of temperament (i.e., surgency, negative affectivity, effortful control). For the children in the stuttering group, measures of stuttering severity and time since onset of stuttering were also included. The backward linear regressions revealed that no single or pair of independent variables significantly predicted perceived competence or social acceptance in either group. Surgency and negative affectivity combined comprised the two-factor model that was most predictive of perceived general competence for all children combined, while surgency and expressive language combined comprised the two-factor model that was most predictive of perceived general competence in CWS only.

Surgency was a common predictor in both of these models – when CWS and CWNS were combined, and when CWS were analyzed separately. Surgency is related to dispositional characteristics of positive emotions and rapid approach to potential rewards, similar to what we know of as “extraversion.” Rothbart (2011) reported that children who are high in surgency, low in fear, and low in effortful control may more readily launch into new activities or situations. “This rapid approach is adaptive when the action is not a risky one. When the situation is risky, however, approach can lead to negative outcomes; the more surgent and fearless child may engage too rapidly” (Rothbart, 2011, p. 176). Children who rapidly approach new situations or

activities that offer some amount of risk may be predisposed to experiencing negative outcomes. If a child repeatedly feels that his approach to novel experiences places him in negative situations, he may adopt less positive perceptions of his ability to be successful in his environment; in other words, the goodness of fit between the child's approach habits and the environment may not match. This might have negative implications for the child's development of positive perceptions of his/her cognitive or physical competencies.

If a child who stutters exhibits a high level of surgency, he may be inclined to rapidly approach situations that tend to be disfluency inducing. There are advantages and disadvantages to being a risk-taking child who stutters. The tendency to approach novel situations affords the child the opportunity to interact with new people, experience new situations, and build resiliency. However, he simultaneously puts himself at risk for more stuttering; engaging in new situations which pose novel communicative pressures (e.g., language complexity, utterance length) and increases one's arousal is likely to exacerbate periods of stuttering, and these moments of heightened disfluency may lead to a decreased sense of communicative and social competence.

The best predictive model of perceived social acceptance for the CWS and CWNS combined was a two-factor model including negative affectivity and receptive language, while receptive language and stuttering severity together was the most predictive of perceived social acceptance in CWS only. Receptive language was a common predictor in both of these models. Language competence is one of the prerequisites for making friends in early childhood; if children are unable to use language effectively then they may not be accepted by their peers. Limited language ability has been shown to be associated with lower levels of social acceptance among peers. For example, children with language limitations are less likely to be identified as preferred peer playmates, and language ability is a better predictor of peer status than age or

intelligence (Gertner, Rice, & Hadley, 1994). In their study, Gertner et al. (1994) found that general receptive language was the discriminating factor between children with speech/language impairments who fared well in regard to social acceptance and those who did not. Further, children with speech/language limitations but with age-appropriate receptive skills received fewer negative peer nominations than average. Overall, the results of the present study combined with those of Gertner et al. (1994) suggest that receptive language skills are an important factor in social competence and consequent peer acceptance.

In addition to the tendency for preschool-age children to view their competencies in an overly positive light, the non-significance of the results might be related to the fact that none of the perceived general competence items on the PSPCSA specifically pertain to the quality of the child's speech, with regard to fluency, articulation, or overall intelligibility. Several of the cognitive competence measures relate to knowledge of basic concepts, which are linked to adequacy of language skills (e.g., knows the alphabet, knows the first letter of one's name). However, language and speech are distinct domains and thus the PSPCSA may not be sensitive enough to detect perceptions of communicative, specifically speech, competencies. It seems plausible that a child's stuttering narrowly affects his/her perception of stuttering and communicative competence only, with limited or no bearing on the child's self-perception of his abilities in either the cognitive or physical realms of competence.

A child's degree of perceived competence may play a role in his/her therapeutic outcome. According to the *common factors theory* within the field of psychotherapy, approximately 40% of the change that occurs as a result of any therapy regimen can be attributed to "extratherapeutic change," or client variables. About 30% of the change can be accounted for by the client-clinician relationship, 15% to expectancy (i.e., the placebo effect), and 15% to the specific

therapy technique (Lambert, 1992; Asay & Lambert, 2004). With regard to extratherapeutic change, the strengths of the child and his/her parents can contribute to success in therapy. Some client factors that influence a successful outcome include, but are not limited to, persistence, openness, optimism, attention and emotion regulation, and age-appropriate language and phonological abilities (Zebrowski, 2007). To this end, one's sense of perceived competence, if age-appropriate (inflated), may also positively contribute to a young child's therapeutic outcome. It seems reasonable to speculate that one's confidence and perception of competence would affect how one responds to intervention. If one believes that he/she has the ability to be successful, then it is likely that he/she will put forth the effort to be successful; contrarily, if one feels that he/she does *not* have the ability to be successful, then it is unlikely that he/she will put forth the effort to be successful. Therefore, determining the degree of self-perceived competence could be an important contributing factor to a successful therapeutic outcome.

For children who stutter who regard their competence negatively or lower than expected, clinicians may choose to incorporate resilience training into the intervention. Resilience refers to one's ability to cope with stress and adversity. It is best understood as a process rather than a character trait, and thus lends itself to an appropriate long-term therapy goal for those individuals who would benefit from it. The American Psychological Association suggests ten tips that parents and teachers can implement to help build resilience in children and teens: (1) make connections with peers; (2) help others; (3) maintain a daily routine; (4) take a break from things that one finds troubling; (5) teach self-care; (6) set reasonable goals and then move toward them one step at a time; (7) nurture a positive self-view through humor, realizing one's accomplishments, and learning from previous successful experiences; (8) keep things in perspective and maintain a hopeful outlook; (9) look for opportunities for self-discovery; and

(10) accept that change is part of living and that new goals can replace goals that have become unattainable. Recent research on adults who stutter has shown that self-efficacy (a sense of mastery), social support, and healthy social functioning are important contributors to the resilience process for adults who stutter; each of these contributors play a role in one's adaptive coping in the face of adversity associated with persistent stuttering (Craig, Blumgart, & Tran, 2011). These findings, coupled with the suggestions from the American Psychological Association, outline several ways to incorporate resilience training into stuttering therapy for those children who may benefit from support in this area.

#### ***Limitations of the Present Investigation & Directions for Future Research***

That stuttering severity scores were not collected for the CWNS poses a potential weakness of the present study. Although not significant, stuttering severity scores were the second most predictive factor of perceived social acceptance in CWS. The strength of this relationship might have been reinforced if stuttering severity scores had been included for CWNS. The relatively low number of subjects also poses a weakness of the present study. The likelihood of reaching statistical significance is enhanced as the number of subjects ( $n$ ) increases, especially when many variables are included in a regression analysis such as in this study.

Despite there being ample research regarding the relationship between child characteristics included in this study and perceived competence and social acceptance, it appears that these other measures are not the most predictive of perceived competence or social acceptance. The findings from this study reveal that perceived competence is most likely predicted by a variety of factors, not just a single one. Also, the factors included in this study do



not paint the whole picture of perceived competence. Rather, it is likely that there are other factors not included in this study that may play a larger role in predicting the constructs of interest. Other factors that may prove to be more predictive of PSPCSA scores include, but are not limited to, measures of communication attitudes, sensory-related difficulties, or intelligence. A measure of communication attitudes, such as the *Communication Attitude Test for Preschool and Kindergarten Children Who Stutter* (KiddyCAT; Vanryckeghem & Brutten, 2007), would assess preschool-age children's attitudes towards communication. It would be interesting to correlate young children's scores on the KiddyCAT with their scores on the PSPCSA to see if negative attitudes towards communication correlate with lower scores on the PSPCSA. Another measure of potential interest is one that assesses sensory differences, such as the *Sensory Profile* (Dunn, 1999). Just as one's temperament is as unique as one's thumbprint, the way that one's body takes in environmental stimuli is very individual. Our sensory systems are wired to respond to the environment in certain ways, and idiosyncrasies in this system may affect how one behaves in one's environment. These behaviors may be adaptive or maladaptive. It might be telling to observe whether sensory sensitivities are correlated with measures of perceived competence. A measure of intelligence might also be a predictive factor of perceived competence. Although the validity of intelligence quotient (IQ) tests has been disputed over the years, IQ scores have been used in many educational and social science contexts to predict such things as educational achievement, job performance, and income. If IQ scores can be predictive of these outcomes, could they also be predictive of perceptions of competence and/or social acceptance?

Another possibility is to assess perceived competence in CWS later in childhood or in adolescence. The negative communicative attitudes that CWS sometimes adopt have been shown

to solidify as they get older and this might pervade other aspects of their perceived competence. This might be rooted purely in the child's cognitions; for instance, if an adolescent who stutters believes that he is not capable of communicating competently, then he may think that he is not competent in other realms (e.g., academics, critical thinking). Alternatively, it could be rooted in the child's actual competencies; for instance, if an adolescent who stutters is avoiding speaking and/or social situations, he may actually be underperforming during those situations and thus is not exhibiting competence in those areas. It may also be telling to compare PSPCSA scores over time. The construct of perceived competence has been thought to change over the course of young childhood, as children's self-perceptions become more realistic as they get older. Comparing PSPCSA scores longitudinally may reveal (a) the stability or instability of the measure over time, and/or (b) a relationship between perceived competence and the development of speech fluency over time (whether a child persisted in stuttering, recovered from stuttering with or without treatment, or never stuttered).

An additional avenue for future research could be to analyze the present data differently. An alternative analysis could examine how PSPCSA scores correlate with stuttering severity. A correlational analysis would reveal the nature of the relationship between stuttering severity and the perceived competence and social acceptance of children who stutter. This would be unique from the analyses conducted in the present study. In the present study, a t-test was chosen to examine whether CWS differed from CWNS with regard to their mean PSPCSA scores. However, a correlational analysis would make known the direction and strength of the relationship, if there is one. Taken a step further, one could assess whether perceived competence and social acceptance play a mediating or moderating role between stuttering and other adaptable outcomes such as academic achievement, actual social acceptance, and attitudes towards

speaking. If perceived competence were a mediator between stuttering and some other outcome measure, it would account for the interaction between the two variables. However, if perceived competence were a moderator, it would influence the strength or direction of the relationship between stuttering and the outcome measure.

Overall, it appears that the factors that influence perceived competence could be as multifactorial as those that “cause” stuttering. Hopefully, continued research in the area of perceived competence in children who do and do not stutter will shed further light on the unique contributions of language, temperament, and speech fluency to this measure of interest.

APPENDIX A  
CALCULATION OF STUTTERING SEVERITY

<u>SLD</u>	<u>DURATION</u>	<u>TENSION</u>	<u>POINT EQUIVALENT</u>
	R.U. <sup>1</sup> Prolongation		
0-3.....	1	none.....none.....	0
3-5.....	1	none/very brief.....none.....	1
5-7.....	1.5	< 0.5 sec.....slight.....	2
7-10.....	2	< 1 sec.....slight-moderate.....	3
10-15.....	3	< 1.5 sec.....moderate.....	4
15-20.....	4	< 2 sec.....moderate-excessive.....	5
> 20.....	> 4	2-3 sec.....excessive.....	6

**Secondary Characteristics**

0.25 – mild, very few, infrequent, minimal; not noticeable unless looking for it

0.33 – mild, few and occasional; barely noticeable

0.50 – moderate, few and sometimes; noticeable

0.66 – moderate, some and/or often; obvious

0.75 – severe, many and/or frequent; distracting

1.00 – severe, many and frequent; severe and painful looking

**Calculation of Stuttering Severity**

$$\left( \frac{\quad}{\text{SLD pts.}} + \frac{\quad}{\text{Duration pts.}} + \frac{\quad}{\text{Tension pts.}} \right) / 3 = \underline{\quad}$$

Additional points for secondary characteristics =                     

Total severity score =                     

<sup>1</sup> R.U. = repetition units (i.e., “an-an-an-and” would be three R.U.; “but-but” would be one R.U.)

APPENDIX B  
ITEMS ON THE PSPCSA (PRESCHOOL-KINDERGARTEN FORM)

<b>PERCEIVED GENERAL COMPETENCE</b>	
<b>Cognitive Competence</b>	<b>Physical Competence</b>
1. Good at puzzles	3. Good at swinging
5. Gets stars on papers	7. Good at climbing
9. Knows names of colors	11. Can tie shoes
13. Good at counting.	15. Good at skipping
17. Knows alphabet	19. Good at running
21. Knows first letter of name	23. Good at hopping

<b>PERCEIVED SOCIAL ACCEPTANCE</b>	
<b>Peer Acceptance</b>	<b>Maternal Acceptance</b>
2. Has lots of friends	4. Mom smiles
6. Stays overnight at friends'	8. Mom takes you places you like
10. Has friends to play with	12. Mom cooks favorite foods
14. Has friends on playground	16. Mom reads to you
18. Gets asked to play with others	20. Mom plays with you
22. Eats dinner at friends' house	24. Mom talks to you

## APPENDIX C

Table C1. Description of temperament subscales (Rothbart, 2011).

<b>Subscale</b>	<b>Definition</b>	<b>Composite Factor</b>
Activity Level <sup>+</sup>	Level of gross motor activity including rate and extent of locomotion	Surgency
Approach <sup>+</sup>	Amount of excitement and positive anticipation for expected pleasurable activities	
High-Intensity Pleasure	Amount of pleasure or enjoyment related to situations involving high stimulus intensity, rate, complexity, novelty, and incongruity	
Impulsivity <sup>+</sup>	Speed of response initiations	
Shyness	Slow or inhibited approach to situations involving novelty or uncertainty	
Smiling and Laughter	Amount of positive affect in response to changes in stimulus intensity rate, complexity, and incongruity	
Anger/ Frustration <sup>+</sup>	Amount of negative affect related to interruption of ongoing tasks or goal blocking	Negative Affectivity <sup>+</sup>
Discomfort	Amount of negative affect related to sensory qualities of stimulation, including intensity, rate, or complexity of light, movement, sound, and texture	
Soothability	Rate of recovery of peak distress, excitement, or general arousal	
Fear	Amount of negative affect including unease, worry, or nervousness related to anticipated pain or distress and/or potentially threatening situations	
Sadness	Amount of negative affect and lowered mood and energy related to exposure to suffering, disappointment, and object loss	
Attentional Focusing <sup>-</sup>	Tendency to maintain attentional focus upon task-related channels	Effortful Control <sup>-</sup>
Inhibitory Control <sup>-</sup>	The ability to plan and to suppress approach responses under instructions or in uncertain situations	
Low-Intensity Pleasure	Amount of pleasure or enjoyment related to situations involving low stimulus intensity, rate, complexity, novelty, and incongruity	
Perceptual Sensitivity <sup>-</sup>	Amount of detection of slight, low-intensity stimuli from the external environment	

<sup>+</sup> CWS exhibit significantly higher scores when compared to CWNS (Ebrechts et al., 2000; Eggers et al., 2010)

<sup>-</sup> CWS exhibit significantly lower scores when compared to CWNS (Ebrechts et al., 2000; Eggers et al., 2010)

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