

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

Teacher Perceptions of Stuttering

A thesis presented in partial fulfilment of the requirements for the degree of

MEdPsych

in

Educational Psychology

at Massey University, Albany,

New Zealand.

James Robert Nicholls

2013

Abstract

Stuttering is a largely misunderstood communication disorder, which can have long-term effects for people who stutter. A predominantly negative stuttering stereotype exists; previous research has found many groups, including teachers, subscribe to the stereotype. The current study investigated teacher perceptions of children who stutter and stuttering using a mixed-methods approach. The quantitative findings were based on a 15-item semantic differential scale and a 32-item attitudinal statement scale. The qualitative findings were based on two semi-structured interviews. Generally, in this study teachers provided positive or neutral ratings for the semantic differential adjective pairs and the attitudinal statements. These findings suggest that for this group of teachers that they appear not to adhere to a strong negative stereotype for children who stutter. Teachers' ratings indicated that they did not view stuttering as a barrier to academic achievement. With respect to use of strategies to assist children who stutter, the teachers ratings indicated they were unsure about the best strategies to use. Their ratings also indicated they were unsure about the nature and etiology of stuttering. The results indicated that perceptions of children who stutter are changing and that teachers may not adhere to a negative stuttering stereotype. Education about stuttering and experience with people who stutter may facilitate change in teacher's perceptions and attitudes towards children who stutter.

Acknowledgements

I would first like to thank the teachers who participated in the survey or were interviewed for this study, without whom this research would not have been possible.

I would like to thank my supervisors, Dr. Helen Southwood and Dr. Jill Douglass, for their availability and advice throughout the process of completing this thesis. Finally, and most importantly, thanks to my family for putting up with me this year.

Low-risk approval for this research was obtained from the Massey University Ethics Committee.

Table of Contents

	Page no.
Abstract.....	i
Acknowledgements.....	ii
Table of Contents.....	iii
List of Tables.....	vi
List of Appendices.....	vii
Introduction.....	1
Symptomatology.....	1
Overt symptoms of stuttering: primary features.....	2
Overt symptoms of stuttering: secondary features.....	3
Covert symptoms of stuttering.....	4
Impact of Stuttering.....	5
Etiology of Stuttering.....	7
Historical discredited theories.....	8
Genetics and familial links.....	9
Physiological theories.....	9
Neurological theories.....	10
Additional theories.....	11
A multifactorial etiology.....	12
Epidemiological Considerations.....	13
Prevalence and gender.....	13
Age of onset.....	13
Prognosis.....	15
Concomitant disorders.....	15
Stereotypes.....	19
Stereotype formation.....	19

Stereotype threat.....	20
The stuttering stereotype.....	21
Formation of a stuttering stereotype.....	22
Anchoring-adjustment hypothesis.....	22
Perceptions of causality.....	25
Warmth and competence.....	26
Who subscribes to the stuttering stereotype?.....	27
Implications of a negative stuttering stereotype for children who stutter.....	29
The accuracy of the stuttering stereotype.....	31
Teachers of children who stutter.....	32
Methodology.....	35
First Participant Recruitment.....	35
Second Participant Recruitment.....	35
Participants.....	36
Informed consent.....	37
Assessment instruments.....	37
Demographic questionnaire.....	38
Semantic differential questionnaire.....	38
Attitudinal statements.....	39
Survey.....	40
Semi-structured interviews.....	41
Results.....	42
Quantitative Results: Online Surveys.....	42
Participants.....	42
Demographic questions.....	42
Response to semantic differential adjective pairs.....	44

Response to attitudinal statements.....	46
Qualitative Results: Semi-structured Interviews.....	51
Neutral concept of children who stutter.....	52
Stuttering is not a barrier.....	53
Teacher perceptions matter.....	53
Discussion.....	55
Teacher Perceptions of the Nature of Stuttering.....	56
Teacher Perceptions of the Personality Traits of Children who Stutter.....	57
Teacher perceptions of the Academic Proficiency of Children who Stutter.....	61
Role of the Teacher.....	62
Influence of the Teacher.....	65
Possible Response Bias.....	66
Limitations.....	68
Conclusions.....	70
References.....	71
Appendices.....	83

List of Tables

	Page
<i>Table 1.</i> Summary of Responses to Demographic Questions.....	44
<i>Table 2.</i> Summary of Responses to the Semantic Differential Questionnaire.....	46
<i>Table 3.</i> Summary of Responses to Attitudinal Statements.....	48, 49

List of Appendices

	Page no.
Appendix A. First recruitment email.....	83
Appendix B. Information sheet.....	84
Appendix C. Second recruitment email.....	87
Appendix D. Demographic Questionnaire.....	88
Appendix E. Semantic Differential Adjective Pairs.....	90
Appendix F. Instructions for Semantic Differential component of the survey, and sample question with 7-point Likert scale.....	91
Appendix G. List of Attitudinal Statements.....	92
Appendix H. Instructions for Attitudinal Statement component of the survey, and sample question with 5-point Likert Scale.....	94
Appendix I. Semi-structured Interview Schedule.....	95

Introduction

Stuttering: “(1) its cause is unknown, (2) its essential nature is not understood, and (3) there is no known cure” (Wingate, 2002, p. 11)

Symptomatology

Stuttering is classified as a communication disorder by the *Diagnostic and Statistical Manual of Mental Disorders, 5th ed.* (DSM-V), and is characterised by up to seven criteria (American Psychiatric Association; DSM-5 Task Force, 2013), including three key groups of stuttering behaviour: repetitions, prolongations, and blocks. Other criteria are pausing within a word, circumlocutions, and producing words with excessive physical tension. Stuttering is considered to have two components: overt stuttering behaviours, as outlined in the DSM diagnostic criteria, and covert symptoms, which are the hidden side of the disorder. Unlike the DSM-IV, the DSM-5 mentions some of the covert symptoms of stuttering, such as fearful anticipation and anxiety (American Psychiatric Association; DSM-5 Task Force, 2013).

Discussing the symptomatology of stuttering is potentially problematic because, while the behaviour of stuttering is often obvious and observable, *symptoms* are “surface indications of some condition that cannot be observed directly” (Wingate, 2002, p.58). Therefore, stuttering is somewhat paradoxical because it has both observable overt symptoms, and covert behaviours that are asymptomatic. Focussing on the overt symptoms of stuttering often ignores the covert side of the disorder. A person who stutters will only be perceived as having a stutter once they begin to speak and, because no person who stutters does so all the time, their dysfluency still may not be immediately obvious to listeners.

Stuttering is unique in another way: more than any other disability, much of the accumulated opinion, research, and explanation regarding the nature and treatment of

stuttering comes from people who stutter (Wingate, 2002). Researchers have gained an insight into the covert symptoms of stuttering through this contribution to the knowledge base. The following section will explain and define primary and secondary overt symptoms of stuttering, leading into a discussion around the covert aspects of the disorder.

Overt symptoms of stuttering: primary features.

The overt symptoms of stuttering are the audible, visible, and observable features. The audible features are the primary symptoms of stuttering, and have three main classifications: Repetitions, prolongations, and blocks.

Repetitions can be part or single syllable, or whole-word (Fogle, 2012), and do not usually disrupt the overall rate of conversation (Mulcahy, Hennessey, Beilby, & Byrnes, 2008). Whole-word repetitions tend to occur during normal speech development in most young children; only becoming a problem if they persist beyond the developmental stage (Onslow, 2004). Prolongations involve a sound or letter being drawn out until the speaker is either able to complete the word or runs out of breath (Montgomery, 2006; Ramig & Dodge, 2010). Blocks occur when airflow appears to be obstructed and the articulators freeze mid-word, while the speaker attempts to push the word out (Onslow, 2004; Ramig & Dodge, 2010). Secondary features of stuttering such as facial contortions, eye blinking, or foot tapping often accompany blocks.

Each person who stutters has a unique combination of symptoms that is rarely consistent and often changes over time. While some people who stutter may only ever block or repeat hard consonants, for example, others may present with blocks, repetitions, and prolongations at different times, or concurrently (Freeman & Friman, 2004; Onslow, 2004). Individuals who stutter often develop behavioural patterns for certain words or sounds, in which an attempt by a person who stutters to vocalise a

particular word or sound may result in a certain combination of symptoms. These behavioural patterns can be predictable or hugely unpredictable (Manning, 2010). Ramig and Dodge (2010) note some regularity, in that people who stutter tend to have a certain “phonemic consistency of dysfluencies . . . for example, a tendency to become blocked on one or more specific sounds” (p. 240). Despite the apparently random and variable appearance of symptoms, Wingate (2002) suggests that stuttering is not random because it “does not occur randomly in the speech structure. It is [a] function of various aspects of word use, including matters of word type . . . and structure” (p. 80).

Overt symptoms of stuttering: secondary features.

People who stutter develop secondary features (that is, accessory or superfluous features, coping strategies, or tricks) sometimes deliberately but often unconsciously, to increase their fluency (Hughes, Gabel, & Irani, 2011). As a person who stutters attempts to overcome a moment of stuttering and is rewarded with a lesser level of dysfluency, the fluency-increasing behaviour is reinforced over time.

Examples of secondary features that accompany stuttering are extensive. Secondary features can be visible physical behaviours, such as blinking or closing the eyes, movement of the forehead, grimacing, mouth distortions, jaw tremors, gritting the teeth, forcible inhalation or exhalation, nodding the head, clenching a fist, and tapping or stamping hands or feet (Hughes et al., 2011; Ramig & Dodge, 2010; Wingate, 2002). Secondary features can also be largely hidden processes such as visualising the letters of a word and reading it out loud, speaking to a rhythm, variations in breathing, or word avoidance (Panico, Daniels, & Claflin, 2011). There are also verbal secondary behaviours, including excessive use of the reduced schwa (“uh”) vowel, variable pitch and loudness, extraneous and unusual sounds, the frequent use of fillers, interjected

words, hard onsets of phonation, and excessive vocal fry (Fogle, 2012; Ramig & Dodge, 2010; Wingate, 2002).

A significant subset of secondary behaviours is avoidance behaviours.

Avoidance behaviours are behaviours that many people who stutter use to avoid saying particular sounds or words, certain speaking situations, or having to speak at all.

Avoidance behaviours include speaking in a dialect, rephrasing or circumlocution, and pretending to reflect or forget what they were saying. Other examples of avoidance behaviours are faking a cough or a yawn, pretending to not know the answer, moving while talking, and ceasing to talk completely (Fogle, 2012; Ramig & Dodge, 2010; Williams, 2012; Wingate, 2002).

Secondary behaviours are reinforced in children who stutter, at least in part, by how listeners respond. A secondary behaviour, which results in fluent speech and elicits a positive response from a listener, may increase the probability that the child will use that behaviour when he is subsequently in a similar situation. Once secondary symptoms are incorporated into the regular speaking patterns of a person who stutters, communication can become a source of fear and anxiety, intensifying the cycle of stuttering. A person who stutters can become reliant on secondary symptoms that have been reinforced in order to communicate. However, the secondary symptoms also reinforce the stutter.

Covert symptoms of stuttering.

While the overt symptoms of stuttering are generally visible and audible, there is another side to stuttering which is largely invisible but can have devastating consequences for the person who stutters. These are covert symptoms; including cognitive and psychological processes, and avoidance behaviours. Sheehan (1975) likened stuttering to an iceberg, with the discernible overt symptoms above the water

and the predominant aspects of the disorder invisible to the observer. As with overt symptoms, covert symptoms affect individuals in markedly different ways. It is debatable whether these should be referred to as covert symptoms or covert reactions, because they often result from the response of the person who stutters or other listeners to the overt symptoms. Covert symptoms can include feelings and thoughts such as “frustration, anxiety, anger, guilt, hostility, shame, and expectations of difficulty talking, which leads to inhibitory and avoidance behaviors” (Fogle, 2012, p. 206).

Impact of Stuttering

For children who stutter, bullying and other forms of victimisation such as teasing can be a problem and are common (Turnbull, 2006). Several studies have investigated the incidence of stuttering-related teasing or bullying, and have found between 44% and 83% of children who stutter experience bullying or some other form of victimisation from their peers (Blood et al., 2011; Ivoskuvienė & Makauskiene, 2009; Turnbull, 2006). Blood et al. (2011) also suggested that children who had been bullied because of their stutter were more likely to have increased anxiety, lower self-esteem, and poorer life orientation than children who did not stutter. This knowledge is important in the context of school to enable teachers to advocate for and understand bullied children who stutter.

Covert symptoms such as low self-esteem and anxiety can negatively affect academic progression and development of children who stutter. While looking at the broader concept of children with communication disorders, including stuttering, Thatcher, Fletcher, and Decker (2008) suggested that these children require a certain level of proficiency in “social and behavioral regulation skills . . . managing time, and interacting with their peers” (p.580) in order to benefit from traditional schooling. As children approach adulthood, employment opportunities and advancement, interpersonal

relationships, and mental health can all be impacted negatively if they lack self-esteem and show an elevated level of anxiety (Turnbull, 2006). In a study which found social anxiety was significantly higher in adolescents who stutter compared to their fluent peers, Mulcahy et al. (2008) suggested this indicates stuttering involves psychosocial conflict whether the speaker displays it outwardly or not. This research compared levels of state anxiety (that is, a temporary emotional state) and trait anxiety (that is, individual differences regarding proneness to anxiety) in the two groups; the data indicated higher levels of both types of anxiety in the participants who stutter compared to their fluent peers, along with an elevated fear of being perceived negatively.

Another potential long-term result of stuttering is the social effects of discrepancies in the development of socio-emotional skills. Panico et al. (2011) suggested that children who stutter could struggle to make friends or interact with peers. In a study which was discussing children in residential care who stutter, stuttering was described as “a social handicap [which] can...lead to social rejection” (Freeman & Friman, 2004, p. 249) which is only exacerbated by underdeveloped social skills. Stuttering can have an adverse effect on self-perception and self-esteem (Yovetich, Leschild, & Flicht, 2000), and cause shame, enhanced self-consciousness, and feelings of helplessness caused by a lack of internal locus of control (Ginsberg, 2000).

Expectancy is a learned component of stuttering, and can be considered a covert symptom. Expectancy, according to Montgomery (2006), is when a previous negative speaking experience interferes with the mind of a person who stutters, impacting their present speaking experience. One negative speaking experience example for many people who stutter is saying their own name; the struggle is possibly due to the inability to substitute another word for their name and heightened anticipation. The speaker recalls previous difficulties in saying their name along with the associated negative

thoughts and emotions. After time, the person who stutters is expectant that he will stutter on his name. The heightened anticipation can often generalise to other words beginning with the same sound (Montgomery, 2006). In some instances, the response of negative behaviours, beliefs, and expectations strengthens as the person who stutters ages.

In summary, the symptoms of stuttering fall into two broad categories: overt and covert. There are primary and secondary overt symptoms, which are visible and audible behaviours such as repetitions, prolongations, blocks, and a variety of physical manifestations. A moment of stuttering can also be covert or hidden, such as avoidance behaviours and word substitutions. Covert symptoms of stuttering, the mostly submerged portion of the iceberg, can have the most significant effect on the person who stutters. The covert symptoms may include a lack of academic progress, underdeveloped social skills, and negative psychological constructs (for example, expectancy) which are persistently reinforced as stuttering occurs. People who stutter have a distinctive combination of overt and covert symptoms which, together with the personality traits of the individual who stutters, forms a unique set of behaviours.

Etiology of Stuttering

There are many theories regarding the etiology of stuttering. Despite the abundance of research, the specific etiology of stuttering remains unknown. The generally accepted consensus is that stuttering has a multifaceted etiology which includes a genetic predisposition alongside a combination of environmental, neurological, physiological, psychological, and learned behavioural aspects (Ambrose, 2004; Onslow, 2004). Individuals who stutter have different combinations of these factors, due to the unique nature of symptoms (Millard, Nicholas, & Cook, 2008)

Historical discredited theories.

The history of determining the cause of stuttering is long and varied. The ancient Greeks believed the explanation resided in the tongue: Aristotle attributed stuttering to difficulties in moving the tongue between sounds (Bloodstein & Bernstein Ratner, 2008), while Hippocrates blamed the disorder on dryness of the tongue (Kraft & Yairi, 2012). By the early 1800s the cause of stuttering was generally accepted as a disruption in the wider speech apparatus, especially the tongue (Buchel & Sommer, 2004). This theory resulted in severe surgeries which often resulted in mutilation and further disabilities (Buchel & Sommer, 2004). As the nineteenth century progressed, etiological theories began to include psychological trauma and mental anxiety alongside the physiological aspects (Gilman & Yaruss, 2000).

Sigmund Freud believed stuttering originated from psychic trauma and that people who stutter think of speech as a hostile act, viewing words as weapons (Gilman & Yaruss, 2000). According to this theory, people who stutter are ashamed of this irrational hostility, causing them to attempt to suppress it, which results in blocks in their speech. In the first half of the twentieth century, various Freudians developed their own theories of stuttering: Otto Fenichel suggested that stuttering resulted from anal fixations (Ambrose, 2004). That is, some children who have difficulties during toilet training become anxious but displace their anxiety regarding their bowels to their mouth, as a type of verbal constipation. Two other Freudians, Isador Coriat and Smiley Blanton, each asserted variations of the theory that stuttering resulted from a childhood fixation of the libido (Ambrose, 2004).

Johnson's *Diagnosogenic Theory* (1955) was widely accepted as the etiological explanation and zeitgeist of the time. His theory suggested that stuttering was the result of anxiety in a child caused by parental negativity, which then affected a previously

normal speech pattern (Ambrose, 2004; Buchel & Sommer, 2004; Cooper & Cooper, 1996; Kraft & Yairi, 2012). Although discounted, Johnson's theory continues to influence speech-language professionals and laypeople alike, as evidenced in the widely held belief that calling attention to dysfluent speech in young children may somehow cause stuttering to manifest.

Genetics and familial links.

The inclusion of a genetic component in the causality of stuttering has general acceptance (Ambrose, 2004; Newbury & Monaco, 2010; Onslow, 2004). Studies involving twins have established familial links, through evidence suggesting that one twin is more likely to stutter if their twin does too (Ambrose, Yairi, & Cox, 1993). This is especially true for monozygotic (MZ) twin pairs (Ambrose et al., 1993). However, there are examples of only one stuttering twin out of a MZ pair (Dworzynski, Remington, Rijdsdijk, Howell, & Plomin, 2007) and only about half of people who stutter have a known family history of the disorder (Ambrose, 2006; Riaz et al., 2005). It is likely that the genetic contribution to the etiology of stuttering is a genetic diathesis that is exacerbated by other factors, resulting in the disorder (Kraft & Yairi, 2012; Wingate, 2002). That is, some people stutter because they are genetically predisposed to the disorder, and it develops due to contributions from other features, such as environmental or neurological dynamics. Persistence and recovery do appear to be heritable traits (Dworzynski, Remington, Rijdsdijk, Howell, & Plomin, 2007), with trends extending across generations in some cases (Hall, Wagovich, & Ratner, 2007).

Physiological theories.

Many people who stutter describe tightness and even pain in their throat and/or chest when experiencing a block, possibly due to the "miscoordination of an otherwise normal respiratory, vocal, and articulatory system" (Montgomery, 2006, p. 162),

causing the speaker to lose control of muscles and the diaphragm. Motor control deficits can also become apparent through speech of variable speed and timing (Olander, Smith, & Zelaznik, 2010) and, in some cases, clumsiness (Manning, 2010). Data show that people who stutter have speech motor control system deficiencies even when there are no perceptible stuttering behaviours (Montgomery, 2006; Olander et al., 2010).

Neurological theories.

There have been several studies that have endeavoured to establish neurological abnormalities as the basis of stuttering. Fox et al. (2000) used positron emission tomography (PET) imaging to investigate a theory suggesting that speech-motor regions in both hemispheres and the cerebellum were associated with stuttering. PET and electroencephalograph (EEG) technology has shown that the mechanics of speech for fluent people are controlled mainly by left hemispheric activity, which contains the fine motor control neural circuits (Fox et al., 2000). In addition to this, people who stutter show excessive activity in the right hemisphere, the centre for emotional activity.

The role neurotransmitters play in the etiology of stuttering has been investigated. Neurotransmitters are chemicals released by one neuron that affect another neuron, such as dopamine, serotonin, and norepinephrine (Kalat, 2007). During speech, neurotransmitters flow from the right to the left hemisphere and trigger supplementary activity within speech areas of the left brain. Several studies have focused on dopamine (Comings et al., 1996; Wu et al., 1997), while others have concentrated on serotonin (Costa & Kroll, 2000). The level of chemical activity in the right hemisphere increases relative to the amount of emotional or environmental stress, which augments disruption to the neural connections that control speaking behaviours. As a result, the neural circuits, which influence the muscles of the larynx, the co-

ordination of the articulators, and audio feedback (that is, how the person who stutters hears himself), are affected. The manifestation of the pattern and degree of disruption will be different for each person who stutters. Theories such as this are supported by Onslow (2004) as one component of a multifactorial etiology. The other side of any discussion regarding a neurological basis of stuttering is the question: Does stuttering cause differences in brain activity, or do differences in brain activity cause stuttering?

There are several general themes when discussing brain function and stuttering. First, the neural systems of people who stutter differ between when they are stuttering versus when they are not stuttering. Second, the level of activity in the neural areas associated with motor speech and language production are different in the brain of a person who stutters than they are for a person who does not stutter (Ingham et al., 2004). For example, there is evidence that people who stutter have a deficit in auditory processing which is restricted to speech sounds (Liotti et al., 2010). Third, there is no conclusive evidence that stuttering is restricted to one neural pathway or structure. Finally, stuttering appears to be principally associated with hemispheric irregularity in the motor centres in the non-dominant hemisphere, which is typically the right-hand side (Buchel & Sommer, 2004). Substantial research on stuttering agrees that there are “probable neuromotor influences” (Ramig & Dodge, 2010, p. 239), and that a psychological basis is very unlikely.

Additional theories.

There are several other theories regarding the etiology of stuttering, which combine some or all of the causes already discussed. *Breakdown Theory* attributes stuttering to a combination of the effects of early environmental stress and neurological predisposition (Biermann-Ruben, Salmelin, & Schnitzler, 2005). The *Repressed Need Theory* suggests that people who stutter have a repressed emotional need, and stuttering

behaviours are a symbolic expression of that unfulfilled need (Bloodstein & Bernstein Ratner, 2008). The *Anticipatory Struggle Behaviour Theory* opines that the causality of stuttering is linked to the penalties imposed by parents as a result of normal disfluencies, or to pressures extending to previous oratory failures. As a result, stuttering is a learned behaviour which is triggered by the anticipation and fear felt by the child and, while the struggle is to avoid stuttering, the struggle in avoiding stuttering becomes the stutter (Bloodstein & Bernstein Ratner, 2008).

A multifactorial etiology.

Stuttering is complicated and variable with little symptomatic consistency between or within people who stutter, which suggests that a multifactorial explanation for the etiology of the disorder is likely. Manning (2010) outlines three such models: *Demands and Capacities*, *Dynamic-Multifactorial*, and *Neurophysiological*.

The *Demands and Capacities Model* suggests that stuttering begins when a child who is genetically predisposed for stuttering finds out that their capacity for language is surpassed by environmental demands (such as parental speaking rate, interruptions, and complexity of language) or internal demands, such as the level of complexity of thoughts they wish to express (Arndt & Healey, 2001; Gottwald & Starkweather, 1995; Lattermann, Shenker, & Thordardottir, 2005). If excessive linguistic demand is placed on one area such as semantics, then a child may have to compromise in another area such as vocabulary or syntax. The hypothesis is that children who stutter may be displaying the collective negative effects of overloaded complex motor and linguistic systems (Blood, Ridenour, Qualls, & Hammer, 2003).

In the *Dynamic-Multifactorial Model*, stuttering is viewed as a complex, variable, and dynamic disorder with several basic processes behind the obvious

behaviours (Ambrose, 2004). This model suggests that full exploration of each process is necessary before the likely reason behind an individuals' stutter is discovered.

The *Neurophysiological Model* looks at three influences on human behaviour - neurological processing, output, and environment – and how the combination of these factors varies between and within individuals over time may explain the diversity in the expression of stuttering (De Nil, 1999).

Epidemiological Considerations

Prevalence and gender.

The prevalence of people who stutter varies with age. Approximately 5% of preschool aged children stutter (Dworzynski et al., 2007; Lewis, Packman, Onslow, Simpson, & Jones, 2008), while around 1% of the adult population stutters (Bloodstein & Bernstein Ratner, 2008). While the percentage of the population who stutter decreases with age, the gender disparity increases. Sixty-six percent of preschool children who stutter are male (Dworzynski et al., 2007), which increases to 80% of adults who stutter are male (Onslow, 2004; Wingate, 2002). Blood et al. (2003) found the presence of co-occurring non-speech-language disorders was significantly higher in males than in females, causing them to theorise that “co-occurring or competing speech processing tasks [may] stress the physiological system to a greater extent in males than females” (p.443).

Age of onset.

Stuttering is often classed as a disorder of childhood, which is accentuated by the fact that most people who stutter are children (Wingate, 2002). The onset of stuttering generally begins in the early stages of speech acquisition, between the ages of two and seven for 90% of people who stutter (Lewis et al., 2008; Ramig & Dodge, 2010; Trajkovski, Andrews, O'Brian, Onslow, & Packman, 2006). Whilst this is a

period of significant language growth involving rapid acquisition of vocabulary alongside an increasing familiarity of assorted morphological and syntactic principles (Ntourou, Conture, & Lipsey, 2011), the majority of children develop a significant vocabulary and grammatical base before displaying abnormal disfluencies (Fogle, 2012). This is important because children are more likely to stutter on longer, syntactically complex sentences than on shorter, simpler ones (Ntourou et al., 2011). Although relatively rare, some cases of stuttering begin after age 12, but there is typically a neurological or psychological explanation for late onset stuttering (Manning, 2010). Onset is often a gradual process (Wingate, 2002), although the development of stuttering can be episodic, with oscillations in severity across time and communicative tasks (Ramig & Dodge, 2010).

While speech development comes naturally and easily to most people, learning to speak is a highly complicated process through which most children “repeat sounds and words, hesitate, and stumble on words during the developmental stage of speech” (Ramig & Dodge, 2010, p. 239). Whilst such dysfluencies are normal for most children, they can be the beginning signs of stuttering for others. The most frequent type of dysfluency for children who are beginning to stutter are repetitions of syllables on initial words or utterances (Ramig & Dodge, 2010). Children who stutter are also more likely to stutter on low frequency words, on function words rather than content words, and on sentences longer than they generally articulate (Ntourou et al., 2011). With all this in mind, it is apparent that children who stutter “may experience subtle but important difficulties in one or more steps of the sentence planning/production process” (Ntourou et al., 2011, p. 163), which fluent children do with minimum difficulty.

Factors which may have an influence on the onset of stuttering include neurological functioning, the development of motor skills, and the ability to process

linguistic stimuli (Millard et al., 2008). The commencement of school can increase stuttering behaviours as young children begin to notice their peers, differences between themselves and their classmates, and critically evaluate their own speech (Ivoskuvieniė & Makauskienė, 2009). Ramig and Dodge (2010) point out that stuttering can be frustrating and embarrassing for many children who stutter, and the result may be that they act out in class and avoid speaking situations.

Prognosis.

“The only *sure* cure for stuttering is silence” (Jezer, 1997, p. 3)

Stuttering has no known cure. Research on spontaneous self-recovery has seen anything from 50% (Ramig, 1993) to 89% (Onslow, 2004) of children cease stuttering without formal treatment. The remainder are likely to continue stuttering throughout their lives (Manning, 2010). Consistent with many other aspects of stuttering, spontaneous self-recovery is yet to be explained and there is no way to predict who will recover and who will continue stuttering (Ambrose, 2006). Wingate (2002) explains the differences between stuttering remission and stuttering recovery: remission is partial, the person who stutters still stutters but less severely; while recovery is complete, meaning that the person who stuttered can now be considered fluent.

Concomitant disorders.

It is not unusual for people who stutter to have additional disorders alongside their stuttering. Arndt and Healey (2001) found that a “small but significant percentage” (p.68) of children who stutter also have concomitant speech and/or language disorders; including language, articulation, voice, learning, reading, and/or emotional disorders (Arndt & Healey, 2001; Hall et al., 2007). Several studies have found that people who stutter have a delay in speech onset or progression, and often have articulation differences (Blood et al., 2003; Ntourou et al., 2011; Wingate, 2002).

Another study, conducted by Blood et al. (2003), surveyed 2628 school age children who stuttered, and reported that 1650 (62.8%) of them also had other speech, language, or non-speech language disorders (e.g. learning, phonological, voice, reading, emotional, processing, and neurological disabilities). These 1650 children had a mean of 2.16 concomitant disorders, with 3% having six or more. The most common concomitant speech disorders were articulation (33.5%) and phonological (12.7%) disorders, while expressive semantic disorder (13.5%) and receptive semantic disorder (12.1%) were the most recorded language disorders. Learning (11.4%) and literacy (8.2%) were the most common non-speech-language co-occurring disorders. Blood et al. (2003) mentioned that of all children with co-occurring disabilities, the largest percentage (49%) is represented by those with speech-language disorders. These children may require different assessment and treatment than children with solely a fluency disorder, especially as the number of co-occurring disorders does not appear to reduce over time (Blood et al, 2003).

Language disorders are frequently found among the concomitant disorders, despite seemingly contradictory research. In a meta-analysis of research regarding the language abilities of children who stutter, Ntourou et al. (2011) found that some researchers reported the various language abilities of children who stutter were lower than their fluent peers (Anderson & Conture, 2000; Bernstein Ratner & Silverman, 2000), others reported no significant differences between them (Bonelli, Dixon, & Bernstein Ratner, 2000; Nippold, Schwarz, & Jescheniak, 1991), while others suggested that a typical child with a stutter had sufficient (if not advanced) language abilities (Reilly et al., 2009). However, Ntourou et al. (2011) concluded that children who stutter “appear more likely to exhibit concomitant language disorders than their normally fluent peers” (p.165), based on results from their own study that children who

did not stutter outperformed stuttering children on seven out of ten tests of language abilities. Furthermore, they found that the distinctions were not significant, but that children who stutter have “relatively consistent but subtle differences in language abilities” (Ntourou et al., 2011, p. 173) when compared to their fluent peers. Arndt and Healey (2001) surveyed 467 children with verified fluency disorders and found that 44% also had concomitant phonological and/or language disorders. Approximately 12% of children who stutter also have a phonological disorder, and the same study reported that more than 33% had concomitant articulation disorders; both figures are significantly higher than would be expected in the general population (Blood et al., 2003).

Along with speech and language disorders, Blood et al. (2003) and Manning (2010) highlight several other conditions which can have an impact on fluency, including Tourette’s syndrome, Autism Spectrum Disorders, and Attention Deficit Hyperactivity Disorder (ADHD). Wingate (2002) reports that stuttering is found much more often among those with mental deficiencies, and is most prevalent in those with Down Syndrome.

Children who stutter are more likely to have a concomitant speech or language disorder for several reasons. A young person who stutters who has an additional disorder will find the process of learning to effectively communicate has added complications, and may start to believe that communication is difficult. The result may be the demands placed on the child at that time exceed his or her current capabilities (Blood et al., 2003). Likewise, for those who subscribe to motor theories of stuttering, concomitant disorders not only disrupt the development of fluent speech, but also contribute to the development of stuttering (Blood et al., 2003).

Neurologically, people who stutter may already have a reduced capacity for speech motor control and language formulation, which would only be exacerbated by related disorders. Alternatively, people who stutter may have a speech encoding and language production system which is predisposed to be more susceptible to disruption (Blood et al., 2003). Blood et al. (2003) hypothesise that “children with co-occurring speech disorders and stuttering may be displaying a single disorder (with multiple facets) associated with subtle brain dysfunctions or genetically linked traits” (p.440).

Adults who stutter are over-represented in mental health statistics. Between 44% and 80% of adults who stutter also have social anxiety disorder (Menzies et al., 2008; Stein, Baird, & Walker, 1996). Iverach et al. (2009) found that 72% of adults who stutter met the criteria for at least one mental health disorder. Despite the high comorbidity, there does not appear to be any evidence that mental health disorders are the cause of stuttering.

In summary, it is not unusual for a person who stutters to also have one or more concomitant disorders, especially another speech disorder or a language disorder. Children with speech-language disorders are more likely to have another disorder, compared to all children with co-occurring disabilities, and the lack of a definitive explanation for this adds to the misunderstandings surrounding stuttering. Stuttering is a complex, unusual, and multifaceted communication disorder which is not well understood by most people, including a lot of people who stutter. However, many people have a view of stuttering and people who stutter, including perceptions of personality traits and competencies, which they believe to be accurate whether they have witnessed stuttering or not. For the purposes of this paper, this will be referred to as the stuttering stereotype. To understand the stuttering stereotype and why people

adhere to it, it is necessary to first explore stereotypes and the processes by which they are formed and maintained.

Stereotypes

There appears to be little consensus on what accurately constitutes and defines a stereotype. Schneider (2004) lists 14 common definitions of stereotypes which disagree on three key points: 1) accuracy of stereotypes, 2) if a stereotype is negative, and 3) if stereotypes represent shared or individual perception. For these reasons, the neutral definition, “stereotypes are qualities perceived to be associated with particular groups or categories of people” (Schneider, 2004, p. 24) is used for the current study as it encompasses the essential features of stereotypes while avoiding the contentious aspects. Stereotypes can be positive, negative, or impartial, and every stereotype about a group affects the way they are perceived by others, and often how they perceive themselves. The formation of a stereotype can prejudice the collection and storage of future information, and influence the evolution of subsequent impressions (Schneider, 2004). Consequently, it is not unusual for unwarranted and circumstantial inferences about groups or individuals to be developed and maintained without empirical evidence (Taylor, 1982). Additionally, the particular type of expectations created by stereotypes have the potential to guide and shape reality (Taylor, 1982), and stereotypes persist over time and are resistant to variation (Kalinowski, Armson, Stuart, & Lerman, 1993).

Stereotype formation.

Stereotypes have the capacity to form, evolve, and maintain; hypotheses about this process continue to develop. The *Egocentric Anchoring and Adjustment Theory*, based on Tversky and Kahneman’s influential work (as cited in Kahneman, Slovic, & Tversky, 1982), focuses on the use of heuristics in judgements. This theory proposes that stereotypes are formed when people look at another individual or group from their

own perspective and, because people generally have sensory organs that operate similarly, assume that it is reasonable to expect that others will experience the world as they do (Epley, Keysar, Van Boven, & Gilovich, 2004). Individuals use their own perspective as a starting point, or judgemental anchor (Epley et al., 2004), presumably because it is often highly accessible. From this initial anchoring point, people then adjust their perspective to accommodate obvious external or situational influences, and the residual difference between what they expected and what they actually perceive is often attributed to a personal characteristic of the target (Epley et al., 2004). This causes a problem, in part because of the likely inaccuracies, and also because they are unwarranted, unfair, and thus a source of further conflict by the target of judgment. The result is the complicated process of inferring the perspective of another person is simplified via anchoring and adjustment, by utilising one's own perception and adjusting it as necessary.

Stereotype threat.

The phenomenon of stereotype threat occurs when a group or member of a group confirms a negative stereotype about themselves through their behaviour or performance. Stereotype threat is defined as, "being at risk of confirming, as self-characteristic, a negative stereotype about one's group" (Steele & Aronson, 1995, p. 797). This psychosocial predicament can affect members of any group with a negative stereotype. An individual does not need to believe the stereotype about their group for stereotype threat to occur; they only need to know that it exists in situations where the stereotype is relevant. Stereotype threat can negatively affect performance outcomes and has been linked to self-handicapping traits such as anxiety, evaluation apprehension, and diminished performance confidence (Betz, Blood, & Blood, 2008). If, for example, the stereotype involves intellectual ability, the threat can impair

intellectual performance (Steele & Aronson, 1995). Lower expectations of self can further undermine performance, by deteriorating motivation and subsequent effort. When stereotype threat cultivates low expectations in one area, further failure can eventually lead to disidentification with other areas, confirming a negative stereotype (Steele & Aronson, 1995).

Various theories of why stereotype threat occurs have been proposed; many involving motivation, anxiety, and cognitive processes (Schneider, 2004). However, there is little supporting evidence for any of these explanations and, similar to stuttering, it may be a multifactorial answer.

The stuttering stereotype.

Two factors which help explain the existence of a negative stuttering stereotype are outlined by Kalinowski et al. (1993) as the visceral response from listeners and resistance to amelioration. These two factors can work to form or maintain a negative stuttering stereotype through the listener experiencing uncontrollable physiological responses to stuttering which create feelings of unpleasantness, feelings which persist as the speaker continues to stutter. First, there is a visceral response from listeners to instances of stuttering which are characterised by physical effort, struggle, and tension (Kalinowski et al., 1993). These intermittent overt physical manifestations are likely to have a powerful effect on listeners and their perceptions of people who stutter. In addition, stuttering has proven to be resistant to successful long-term amelioration; Kalinowski et al. (1993) suggests this may be due to speech-language pathologists (SLP) negative perceptions of people who stutter, blaming the person who stutters for less than optimal treatment outcomes.

Formation of a stuttering stereotype.

Many studies have investigated stuttering stereotypes and how people who stutter are perceived. Results indicated people who stutter are characterised by traits including, but not limited to: fearful, reticent (Williams, 2012), anxious, passive (Doody, Kalinowski, Armson, & Stuart, 1993), tense, shy (Kalinowski et al., 1993), introverted, withdrawn (Betz et al., 2008), guarded, sensitive (Klassen, 2002), insecure, they try to avoid talking (Blood et al., 2011), nervous, self-conscious, and quiet (Hughes, Gabel, Irani, & Schlagheck, 2010). Self-perception and the experiences of individual people who stutter are also important. Adolescents who stutter were found to have statistically significantly higher levels of state and trait anxiety and a greater fear of being negatively evaluated than their peers in a study which concentrated on anxiety (Mulcahy et al., 2008). Once formed, the stuttering stereotype may be difficult to dispel because people who stutter intermittently display behaviours which support their stereotype, and behavioural manifestations differentiate people who stutter from people who do not stutter, further reinforcing the stereotype (Kalinowski et al., 1993). That is not to say that people who stutter are to blame for perpetuating their stereotype; rather, it is how their often uncontrollable and unusual behaviours are perceived by others.

Anchoring-adjustment hypothesis.

The egocentric anchoring and adjustment hypothesis, as mentioned prior, is one explanation for how the stuttering stereotype is formed. When a person who stutters displays stuttering behaviours, listeners feel uncomfortable due to uncontrollable physiological responses (Guntupalli, Kalinowski, Nanjundeswaran, Saltuklaroglu, & Everhart, 2006), and the listener anchors their perspective of stuttering based on the experience. From this anchoring point, the listener assumes that the person who is stuttering is experiencing what the listener is experiencing. Furthermore, the listener

believes that any adjustments they make to their perspective of the person who stutters will also be accurate for what the person who stutters is experiencing. Additionally, the initial discomfort experienced by the listener can cause them to associate negative feelings and experiences with stuttering, accentuating the formation or maintenance of a negative stuttering stereotype (Guntupalli et al., 2006).

Further support for the anchoring-adjustment hypothesis is found in a study by Boyle, Blood, and Blood (2009), who surmised that people who do not stutter anchor their judgements about people who stutter from what they feel and experience during their own non-stuttering speech disfluencies. The responses reported during these instances typically include nervousness, tension, and fear; which participants then reassign to people who stutter and disfluent speech (Boyle et al., 2009). Through this process, people who do not stutter generalise state anxiety to trait anxiety (Doody et al., 1993; Kalinowski et al., 1993). This suggests that the negative stuttering stereotype is formed through a process of, “first anchoring the stereotype in personal feelings during times of normal speech disfluency, and then adjusting based on a rapid heuristic judgement” (MacKinnon, Hall, & MacIntyre, 2007, p. 297).

Guntupalli et al. (2006) evaluated the psychophysiological responses of adults who do not stutter whilst listening to stuttering, and found that listeners experienced physiological arousal and unpleasant feelings towards samples of stuttered speech. It is thought that the nature of stuttering behaviour, with rapid onset and offset and the apparent loss of control of speaking mechanisms, increases physiological arousal in listeners who are not used to experiencing such symptoms (Guntupalli et al., 2006). Such physiological responses often result in signs of discomfort and duress from the listener, such as failing to maintain eye contact and reducing their own speech. Furthermore, Guntupalli et al. (2006) suggest that uncontrollable physiological arousal

may supply the emotional origin to negative stereotypical perceptions towards people who stutter, because that is where they anchor their perceptions. The discomfort experienced by listeners can also negatively impact the communicative abilities of people who stutter, who may sense the emotional arousal and feelings of unpleasantness in their listeners in reaction to their stuttering behaviours (Guntupalli et al., 2006).

The neural mechanism *mirror neurons* explains that people can understand the emotions and actions of other people through internal simulation. In the case of stuttering, listeners first observe stuttering, they cognitively register the moment, and then experience an emotional or physiological response, or a combination of the two, due to the peculiar nature of the stuttering behaviour. The outcome is that listeners have a simulated experience similar to a person who stutters, resulting from uncontrollable responses and resulting in the formation and development of inferences about people who stutter (Guntupalli et al., 2006).

Can uncontrollable physiological responses of the listener sow the seeds for stereotypic attitudes towards people who stutter? People who stutter are capable of evoking emotional or visceral responses in those listening to them, and these responses can be transferred to beliefs about the group (Mackie, Hamilton, Suskind, & Rosselli, 1996). For the listener, observing a simple motor process which is in apparent disarray and produces aberrant speech causes unpleasantness. Therefore, the listener often leaves the interaction with a negative feeling. Negative stereotypes about people who stutter begin to arise as listeners are repeatedly exposed to this situation and its ongoing impact on the communicative process. Guntupalli et al. (2006) suggest that such stereotypes do not form as a result of the impact of stuttering on the person who stutters; rather, they appear to arise because of what stuttering does to the listener, beginning with involuntary autonomic arousal.

People who stutter often report that their stuttering behaviours vary depending on the listener. This suggests that emotional responses from listeners are a factor in the variability of stuttering behaviours (Bloodstein & Bernstein Ratner, 2008; Klassen, 2002). Doody et al. (1993) argue that the formation of a negative stuttering stereotype is not the result of subtle personality differences between people who stutter and fluent people; instead, it results from the behavioural differences between people who stutter and people who do not stutter, especially physical tension and struggle.

Perceptions of causality.

A study by Boyle et al. (2009) concluded that there is a relationship between the strength of the stuttering stereotype and perceptions individuals have regarding the cause of stuttering. They found that a common assumption is stuttering has a psychological causality, and further suggested that the stuttering stereotype may be reduced if people can be convinced there is no substantive evidence of a psychological etiology (Boyle et al., 2009). This finding further suggests that a negative stuttering stereotype exists in different degrees, and is somewhat dependent on what an individual perceives to be the cause of stuttering.

Stereotype threat can reinforce a negative stuttering stereotype. If a person who stutters engages in avoidance behaviour, such as pretending to not know an answer or to have forgotten something which they actually know in order to avoid or delay having to speak; this may perpetuate the stereotype that people who stutter are hesitant, indecisive, or intellectually inadequate (Williams, 2012).

The effect of popular culture on the maintenance, if not formation, of the negative stuttering stereotype should not be underestimated. Perceptions of stuttering and people who stutter “have led to cultural and social understandings of stuttering that often have little basis in reality and which, never the less, many citizens have accepted

as factual” (Johnson, 2012, p. 12). Numerous authors or film directors have used stuttering as an easy and effective way to portray weakness (e.g., “Ken Pile” in *A Fish Called Wanda*), nervousness, or evil (e.g., “Billy Bibbit” in *One Flew Over the Cuckoo’s Nest*, “Norman Bates” in *Psycho*); to inject humour (e.g., “Porky Pig” from *Looney Tunes*); and create pity or anger (e.g., “Aaron” in *Primal Fear*). In popular culture, people who stutter are often defined by their stutter, and how the stutter can service the story is usually of more importance than the character (Johnson, 2012). It can be argued that in *The King’s Speech*, the film’s hero stutters but learned to work with his speech difficulties and overcame speaking-related adversity to become a national inspiration in a time of need; the film still uses the stutter to inject humour, create pity, and portray the character as weak and nervous. It is true that *The King’s Speech* did portray many positive elements as well, humanising stuttering more than most examples of stuttering found in popular culture (van Kraayenoord, 2011).

Warmth and competence.

Cuddy, Fiske, and Glick (2008) propose that individuals make judgements and construct stereotypes about groups based on the levels of perceived warmth and competence displayed by a group. This theory helps to explain how both positive and negative traits can be attributed to people who stutter. For example, people who stutter are often stereotyped as non-threatening, generally facilitative, and warm individuals; but they are often viewed as displaying low competence as a result of deficits in their communicative skills (Cuddy et al., 2008). This theory shows that positive stereotypes can be equally as damaging as negative stereotypes, by suggesting that a single trait can define the character of a person.

Who subscribes to the negative stuttering stereotype?

Negative stuttering stereotypes are subscribed to by a variety of individuals and groups, and are “persistent and omnipresent in many populations” (Dorsey & Guenther, 2000, p. 2). Children and students of all ages (Doody et al., 1993; Kalinowski et al., 1993; Turnbull, 2006), including university students (Dorsey & Guenther, 2000) have confirmed the presence of a pervasive negative stereotype toward people who stutter. Evans, Healey, Kawai, and Rowland (2008) studied how middle school students’ perceived a peer who stutters and found that stuttering frequency influenced perceptions of their peer and how they rated behavioural features of children who stutter, but did not influence whether they would be friends or not. Several studies have confirmed that SLPs hold negative stereotypic perceptions of people who stutter (Daniels, Gabel, & Hughes, 2012; Doody et al., 1993; Dorsey & Guenther, 2000; Kalinowski et al., 1993). The same can be said of teachers (Doody et al., 1993; Kalinowski et al., 1993; Turnbull, 2006) and professors (Dorsey & Guenther, 2000).

Educators at all levels have consistently reported negative attitudes towards people who stutter (Daniels et al., 2012). Lass et al. (1992) and Lass et al. (1994) found teachers’ and school administrators’ perceptions of people who stutter to be predominantly negative. Participants were asked to list adjectives describing a hypothetical person who stutters: of the 227 adjectives listed, 192 (66.9%) were negative (Lass et al., 1992). Lass et al. (1994) suggested that results such as these may point to an adverse effect on the educational development of students who stutter at schools. On a more positive note, those teachers with more accurate knowledge of stuttering and experience with children who stutter, are more likely to have more favourable attitudes and realistic classroom expectations than their colleagues (Daniels et al., 2012).

Negative stereotypic attitudes towards people who stutter are also held by parents, people who have never directly had contact with people who stutter (Dorsey & Guenther, 2000), the general public (Doody et al., 1993; Kalinowski et al., 1993), and people who stutter themselves. People who do and do not stutter have very similar self-perceptions, but differ in how they perceive each other. People who stutter see people who do not stutter more positively than they see themselves, whilst people who do not stutter have a more negative perspective of people who stutter than they do of themselves (Doody et al., 1993; Kalinowski et al., 1993). Research has shown that people who stutter often believe negative stereotypes about themselves and behave accordingly (Williams, 2012), consistent with stereotype threat. Furthermore, people who stutter may internalise negative societal views associated with stuttering and may devalue their own speaking abilities (Klassen, 2002). A wide variety of people and groups hold similar stereotypes of people who stutter, with both positive and negative traits. These stereotypes are resistant to change and may serve to isolate people who stutter from other people or groups (Hughes et al., 2010).

Different people holding different stereotypes and attitudes towards people who stutter can be partially explained by *social distance* (Klassen, 2002). Greater familiarity with people who stutter is associated with more positive perceptions of them and improved attitudes toward them (Boyle et al., 2009). Social distance is a measure of the difference between two or more groups in society, and is often based on race, socio-economic factors, or disabilities (Karakayali, 2009). A person who has a personal relationship with someone who stutters is likely to have a more positive view of them, although they are still likely to see them as frustrated, shy, embarrassed, and wanting acceptance (Hughes et al., 2010). In accordance with the anchoring-adjustment heuristic, Hughes et al. (2010) claims that familiarity with one person who stutters may

cause people who do not stutter to generalise their impressions to all people who stutter. In this way, Hughes et al. (2010) and Klassen (2002) do not necessarily agree because familiarity does not always result in positive impressions of people who stutter. However, stereotypical attitudes are generally less negative in those who have an intimate relationship with at least one person who stutters, rather than a superficial relationship with a person who stutters, which may help to decrease stereotyping (Klassen, 2002). The social distance phenomenon supports the view that negative stuttering stereotypes are formed through inference. This is because people who do not stutter are more likely to view a person who stutters more positively if they have less need to make inferences about that person; because they have a personal relationship with that person.

There are few studies that have asked people who do not stutter to give an explanation for negative attitudes towards people who stutter. Hughes et al. (2010) found that people who do not stutter perceive people who stutter as normal individuals who have difficulty communicating. The participants who do not stutter suggested the stuttering stereotype is a result of recurring negative responses from sections of society.

Implications of a negative stuttering stereotype for children who stutter.

The evidence overwhelmingly points to the existence of a pervasive and widespread negative stuttering stereotype. This stereotype can have dramatic implications in the lives of children who stutter.

Childhood is an important developmental time, as children endeavour to construct an identity, form relationships, and find their place in the world. For children who stutter, this is not always an easy or natural process. It can be difficult to construct a positive identity of themselves, partly due to everyday interactions with people who uphold the stuttering stereotype (Betz et al., 2008). Blood et al. (2011) found that

children who stutter and had been bullied have lower self-esteem, less optimistic life-orientation, and lower life-satisfaction than their fluent peers (Blood et al., 2011).

Conversely, another study found that children who stutter have levels of total, general, and social self-esteem similar to the overall population of school children (Yovetich et al., 2000). Social self-esteem did receive the lowest rating, suggesting that children who stutter may have more difficulties with peer relationships relative to other facets of self-esteem (Yovetich et al., 2000).

Communication disorders, including stuttering, can have negative social and academic implications in the school environment (Thatcher et al., 2008). While the ability to make friends differs for each individual child who stutters and may be completely independent of stuttering (Evans et al., 2008), children who stutter experience more teasing, bullying, and other negative social interactions than the average child. This can cause them to restrict their social communication at school and lower their self-esteem (Blood et al., 2011; Daniels et al., 2012; Turnbull, 2006).

Bullying has been shown to have a number of flow-on effects, including psychological distress, adjustment difficulties, poor academic performance, negative self-evaluation, depression, social isolation, ostracism, and somatic symptoms (Blood et al., 2011).

Children who stutter at school can get trapped in a vicious cycle. If they are viewed in a negative or stereotypical way, such perceptions may prejudice the expectations teachers have of children who stutter and, in time, the children can take on these constructions for themselves: thus developing stereotype threat (Turnbull, 2006).

Assumptions formed about individuals as a result of stereotyping are notoriously difficult to alter later in life (MacKinnon et al., 2007). For people who stutter, stereotypes and assumptions formed about them during childhood can cause difficulties in adolescence and adulthood; impacting them educationally, socially, vocationally

(Betz et al., 2008; Gabel, Blood, Tellis, & Althouse, 2004), and psychologically (Iverach et al., 2009; Menzies et al., 2008; Stein et al., 1996). A negative stuttering stereotype can affect the career choice for a person who stutters (Betz et al., 2008). Evidence of job discrimination and role entrapment in the form of vocational stereotyping was found in a study which asked participants to rate the appropriateness of career choices for people who stutter (Gabel et al., 2004). Negative stereotypes of minority groups, including people who stutter, can negatively impact employment income, increase self-consciousness, and cause people to withdraw from activities in which their stereotype suggests they should fail (MacKinnon et al., 2007).

The accuracy of the stuttering stereotype.

There is little debate that a pervasive negative stuttering stereotype exists. Research suggests that there is no legitimate reason to believe that the personalities of people who stutter are fundamentally different from those of people who do not stutter (MacKinnon et al., 2007). Guntupalli et al. (2006) acknowledge that people who stutter are perceived as nervous, tense, anxious, and afraid (relative to people who do not stutter), but posit that there is little supporting evidence to support the stereotype. This is possibly because people who adhere to the stuttering stereotype often base their opinion not on actual personality characteristics of the person who stutters, but on other factors such as the strength of the stuttering behaviour or extrapolating state to trait anxiety (Doody et al., 1993). These other factors, combined with the concept of egocentric anchoring and adjustment, help to explain how listeners form stuttering stereotypes through what they perceive people who stutter to be feeling and experiencing. This is based on what the listener feels when they experience disfluency, and then adjusting these perceptions based on how they view people who stutter. Despite this, the stuttering stereotype remains robust, in opposition to research which

has studied the personalities of people who stutter (Kalinowski et al., 1993). Although individuals who stutter may share similarities in stuttering behaviour, their personality traits are diverse and typically normal, ultimately it is inaccurate and unfair to generalise personalities (Lass et al., 1994). While it may be apparent that prevailing negative stuttering stereotypes are not accurate, it is evident that they are prevalent and consistent, and that stereotypes create an unfortunate social reality for many people who stutter (Bloodstein & Bernstein Ratner, 2008).

Teachers of children who stutter.

For a teacher, having to interact daily with a child who stutters can raise some issues they may not have had to deal with previously. Panico et al. (2011) found that teachers may feel apprehension, uncertainty, and anxiety about how to meet the needs of a child who stutters. Even teachers who are familiar with normal dysfluencies (for example, children repeating and revising words) may feel similarly because of the nature of stuttering. That is, stuttering involves a breakdown in communication as well as disruptions to the speaking process (Guitar, 2006), which can be intimidating to a teacher who may not have encountered stuttering before.

Lass et al. (1992) asked teachers to list adjectives to best describe four hypothetical people who stutter, including two children. Two-thirds of the adjectives listed were negative stereotypical traits, and the most common were “shy,” “nervous,” and “insecure.” The teachers’ negative perceptions of people who stutter “may have an adverse effect on the assessment, instruction, and educational progress of [children who stutter] in their classes” (Lass et al., 1992, p. 80). Ivoskuvienė and Makauskienė (2009) found that teachers perceive children with any degree of stuttering as ashamed of their own stutter, and also that teachers believe the most helpful strategy is to instruct the child who stutters to speak slowly. However, not all research has found that teachers

have negative perceptions of children who stutter. Irani and Gabel (2008) asked teachers to indicate their attitudes toward people who stutter on a semantic differential scale. They found that teachers perceived people who stutter positively, and were more tolerant and accepting of people who stutter than indicated in earlier research which reported negative attitudes towards people who stutter (e.g. Lass et al., 1994; Lass et al., 1992; Yeakle & Cooper, 1986).

It is important to know how children who stutter perceive their schoolteacher's view on stuttering; children as young as three years of age are aware of how their speaking skills compare to those of their peers (Guitar, 2006). Hearne, Packman, Onslow, and Quine (2008) conducted semi-structured interviews and two focus groups with adolescents who stutter. The researchers investigated the adolescent's experiences with stuttering and their perceptions of peers and teacher's awareness and education regarding stuttering. The participants indicated they do not want to be treated differently, teachers often seem to not notice stuttering behaviour, most teachers think stuttering is "a nervous thing" (p. 88), and they believed their teachers should know more about stuttering (Hearne et al., 2008).

Yeakle and Cooper (1986) and Crowe and Walton (1981) assessed teacher perceptions of stuttering and people who stutter by asking them to indicate their level of agreement with statements regarding stuttering. Yeakle and Cooper (1986) found 55% of participants believed stuttering is a psychological problem and 69% disagreed with the statement, "stuttering interfered with academic performance." Three quarters of participants did not believe in excusing children who stutter from verbal tasks, and less than half of the participants disagreed that people who stutter can be described as quiet, shy, and relatively nonverbal.

Both studies asked teachers about the level of experience they had with children who stutter and whether they had specific training regarding speech disorders. They found that exposure to stuttering allowed teachers to be more confident and effective when relating to children who stutter, and also encouraged more positive attitudes towards them (Crowe & Walton, 1981; Yeakle & Cooper, 1986). Teachers with more desirable attitudes were more likely to currently have a child who stutters in their class (Crowe & Walton, 1981). Yeakle and Cooper (1986) concluded that a significant proportion of teachers held erroneous perceptions concerning the etiology of stuttering and personality characteristics of people who stutter; however, these beliefs were less prevalent in teachers who had classroom experience with children who stutter or had training in communication disorders. On the contrary, Irani and Gabel (2008) found that educational and experiential factors had no effect on teachers' attitudes towards people who stutter.

It is of concern if members of the teaching profession, who have significant influence on children during their formative years, have prevailing negative perceptions and stereotypic views of children who stutter. Because of the apparent positive shift in attitudes towards children who stutter (Irani & Gabel, 2008), further investigation is warranted. The purpose of the present study is to investigate teachers' perceptions of stuttering and children who stutter.

Methodology

First Participant Recruitment

Participants for this study were recruited via their principals. An introductory email (Appendix A) and information sheet (Appendix B) were sent to principals at 50 primary, intermediate, and secondary schools seeking permission for their teachers involvement in the current study. The 50 schools identified were in the Auckland, Waikato, and Bay of Plenty areas of the North Island of New Zealand. These regions were chosen because of their proximity to the researcher, should any participants be willing to participate in the semi-structured interview component of the study. Schools in these regions were randomly selected from the Schools Directory (Ministry of Education, 2013) after it was filtered to eliminate schools from outside the set geographical areas and schools with no less than 150 students. Schools with 150 or more students were targeted to increase the participant pool.

Fifty schools were selected because that number of schools had the potential to contact several hundred teachers, which would have been enough to obtain sufficient data from the survey. Principals or people representing the principal from 14 schools replied; which corresponds to a response rate of 28%. Of the 14 replies, nine declined the invitation and five accepted the invitation. A second email was sent to the five schools who accepted the invitation, asking that the email be forwarded to all teaching staff together with the information sheet. The email to the staff included a link to the survey via SurveyMonkey.com. Seven responses to the survey were received as a result of the first email invitation.

Second Participant Recruitment

In order to recruit further participants, follow-up emails (Appendix C) were sent to the 36 schools who failed to respond to the first email. In addition, emails were sent

to 104 principals representing 104 other schools in the same geographical regions.

These emails differed slightly; whereas the original 50 emails required a reply from the principal before the link was sent, should the principal consent to participation, the 104 additional emails included the link to the survey and the request to forward the email on to teaching staff.

The two recruitment emails differed because two principals who received the first email forwarded it on to staff without replying to the email, leaving it up to individual teachers to request the link to the survey from the researcher. The second email, sent to the 104 schools, was altered to accommodate this by asking the principal to forward the email invitation to the survey straight on to their teachers if the principal consented to their teachers' participation. Due to the anonymity of the survey, it was impossible to know whether the original or subsequent emails resulted in responses to the survey. However, 34 additional teachers took part in the survey, bringing the total to 41 participants.

Participants

The participants for this study were 35 teachers, 28 female and seven male, who teach children from Year 1 through to Year 13. The participants responded to an email invitation to complete an online survey regarding teacher perceptions of children who stutter. The teachers were recruited from schools in the Auckland, Waikato, and Bay of Plenty areas of the North Island of New Zealand.

Of the 41 total teachers who participated in the survey, 35 teachers' responses were included and six were not included in the data analysis. Responses from six teachers were excluded from the data analysis because they did not complete the questionnaires. Of the six that were excluded, one participant failed to answer any questions, four participants only responded to the demographic questions, and one

participant responded to the demographic questions and the first ten semantic differential adjective pairs.

Informed consent.

The information sheet attached to every email outlined the project and procedures, and extended an invitation to participate in the online survey. Contact details for the researcher were included so prospective participants could ask questions or clarification if required. Because teachers could only receive the link to the survey if their principal forwarded it to them, and it was explicit in the information sheet that they were under no obligation to take part; participation in the survey implied that consent had been granted by both the principal and individual participants.

Assessment Instruments

A survey was designed to assess the attitudes of teachers to children who stutter. The survey design was based on previous research that examined attitudes towards people who stutter (Crowe & Walton, 1981; Irani & Gabel, 2008; Yeakle & Cooper, 1986). The survey consisted of three parts: a demographic questionnaire, a semantic differential questionnaire, and a level of agreement scale with a series of statements. The demographic questionnaire was included to gather information about the participants, specifically their teaching experience and familiarity with stuttering and people who stutter. The semantic differential questionnaire was intended to evaluate how participants perceive personality traits of people who stutter. The final part of the survey explored the level of agreement participants had with statements related to children who stutter; including how to teach them, the usefulness of various strategies, their academic prowess, and their personality traits. Each component of the survey is outlined below.

Demographic questionnaire.

A demographic questionnaire similar to that used by Irani and Gabel (2008) was used in the current study (see Appendix D for complete survey). The demographic questionnaire asked participants to give details about their age, gender, ethnicity, teaching experience, and the age they are currently teaching; this information provided a snapshot of the sample. Participants were also asked about their knowledge of stuttering through professional reading, teacher training, and experience with people with stutter. This information provided an indication of the teacher's level of stuttering education they currently receive during teacher training, or conduct themselves. A strong link has been reported between teacher perceptions of stuttering and knowledge of stuttering (Crowe & Walton, 1981; Yeakle & Cooper, 1986), indicating that knowledge of stuttering or people who stutter correlates with increased positive perceptions of stuttering and people who stutter. There were no questions that could have identified individual participants or their school.

Semantic differential questionnaire.

The second part of the survey was a semantic differential questionnaire, which measured the teacher's perceptions of people who stutter. Semantic differential scales have been used to measure teachers' attitudes towards and perceptions of stuttering (Irani & Gabel, 2008). Other research has asked teachers to list adjectives describing people who stutter (Lass et al., 1992) in order to ascertain how they are perceived by teachers. Semantic differential tools are suitable to measure perceptions about children who stutter. In the present study, the semantic differential scale consisted of 30 bipolar adjectives, made up of 15 pairs of antonyms (e.g. anxious - composed; sincere - insincere; friendly - aggressive). Six of the adjective pairs were selected from the scale used by Irani and Gabel (2008), and six were selected from Woods and Williams

(1976); the remaining three pairs were present in both studies. The pairs of bipolar adjectives were randomly allocated to the left or right end of the rating scale, by way of a coin toss, to reduce the likelihood of stereotypical response patterns (Coolican, 2004). The adjective pairs were placed at either extreme of a seven-point Likert scale; the adjective pairs and the scale are in Appendix E.

Participants were asked to select the position on the scale which, in their opinion, most accurately described a typical child who stutters. To ensure that data were consistently scored, the more positive adjective from each pair was scored with a 1 and the negative extreme was scored with a 7 irrespective of which end of the scale they were situated. A sample adjective pair with the Likert scale and the instructions pertaining to the semantic differential component of the survey, as provided to the participants, is presented in Appendix F.

Attitudinal statements.

The final part of the survey consisted of 32 attitudinal statements containing scaled responses regarding children who stutter. The statements assessed teachers' perceptions towards stuttering and children who stutter. The statements related to stuttering etiology, personality traits of children who stutter, how stuttering affects individuals, and the role of teachers with children who stutter (Yeakle & Cooper, 1986).

Attitudinal statements have been useful in exploring teacher perceptions of children who stutter (Yeakle & Cooper, 1986), and were originally selected from "various samples of attitude statements accumulated from the literature on stuttering, classroom teachers, and speech-language clinicians" (Crowe & Walton, 1981, p. 164). These statements asked opinions about specific aspects of stuttering, children who stutter, and the teacher-child relationship. The purpose of the attitudinal statements was

to add to the information gathered from responses to the adjective pairs and semi-structured interviews.

The 32 statements used in the current study were obtained from the 36-statement Teacher Attitudes toward Stuttering Inventory (TATS; 1978). These statements were used because they have been useful in identifying teacher attitudes toward stuttering (Crowe & Walton, 1981). Of the original 36 TATS statements, four were discarded because they were not relevant to the present study. One of the unused statements was a vocational question, one was about treatment, and two were emotionally charged because they asked whether children who stutter should expect and accept ridicule, and whether it should be expected for teachers to get angry at children for stuttering.

To modernise the terminology, 23 of the 32 statements were slightly reworded (for example, replacing variations of “stutterer” with “children who stutter” or “CWS”), or to simplify and improve readability without changing the meaning (e.g. “. . . insist on relaxation in the child’s behavior,” was replaced with “. . . insist they relax”). The 32 statements used in the current study are listed in Appendix G.

Participants were asked to read each statement carefully and then indicate on a five-point scale the degree to which they agreed with each statement. The five point scale ranged from strongly agree to strongly disagree, and was identical to the scale used by Crowe and Walton (1981). The participants were asked to indicate their level of agreement with each statement; the five point scale and instructions pertaining to the attitudinal statement component of the survey, as provided to the participants, are presented in Appendix H.

Survey.

The survey was administered via SurveyMonkey.com, an online tool used to conduct and administer surveys. It was used in the current study since it is convenient,

accessible, and user-friendly. SurveyMonkey also provides access to basic data collection and analysis tools. Participants accessed the survey by clicking on a link provided with the email invitations.

Semi-structured interviews.

Survey participants were provided with a voluntary opportunity to take part in a one-on-one semi-structured interview. An invitation was included in the emailed information sheet, and also on the final page of the online survey. The researcher's email address was provided to the survey participants, requesting willing interview participants contact the researcher. The follow-up interviews intended to discuss and explore teacher perceptions of stuttering and the stuttering stereotype without the constraints present in the survey. A semi-structured interview format was used to loosely guide the participants and maintain the focus on the participant's perceptions of stuttering, whilst providing interviewees the opportunity to discuss any relevant and interesting points which may not have been addressed in the survey. The interviews were conducted at the home or workplace of the interviewees and lasted approximately 90 minutes. The semi-structured interview questions is included in Appendix I.

Results

Data were collected using an online survey and two semi-structured interviews. The number of participants included in the data analysis will be reported, followed by the results from the three components of the online survey: demographic information, semantic differential adjective pairs, and responses to attitudinal statements. The results will conclude with a summary of the qualitative data obtained from the two semi-structured interviews.

Quantitative Results: Online Surveys

Participants.

Prior to analysis, six survey responses were discarded. The two reasons for discarding the six survey results include: one teacher submitted the online survey but did not answer any questions, effectively meaning they did not participate; five surveys were incomplete, four participants only answered the demographic questions and one participant answered both the demographic questions and the first ten semantic differential adjective pairs. The demographic data from these six teachers were discarded to ensure that the results were an accurate reflection of those who participated in the entire survey. The semantic differential data from the one teacher who responded to the first ten adjective pairs could not be discarded because there was no way to establish which responses were from that teacher. A total of 36 participant surveys were analysed; including the survey with only the first ten adjective pairs completed.

Demographic Questions.

Table 1 displays the demographic data for the 35 teachers who completed the online survey. Participants were represented in four age categories ranging from 20 to 59 years, with 40% aged between 30 and 39 years. Eighty percent of the teachers were female, and 74% identified themselves as New Zealand European.

Table 1
Summary of Responses to Demographic Questions

	(n=35)	
1. Age of participants (years)	20 - 29 = 14.3% 30 - 39 = 40% 40 - 49 = 25.7% 50 - 59 = 20%	
2. Gender	Male = 20% Female = 80%	
3. Ethnicity	New Zealand European = 74.3% European = 17.1% Maori = 8.6%	
4. Years working in education	Mean = 13.1 Range = 2 to 35	
5. School year currently teaching	1 or 2 = 2.9% 5 or 6 = 8.6% 7 to 9 = 20% 10 to 13 = 68.6%	
6. Do you stutter?	No = 100%	
7. Do you know of someone who stutters?	Yes = 57.1%	No = 42.9%
8. Did any of your teacher training deal with disorders of speech?	Yes = 5.7% No = 91.4% Unsure = 2.9%	
9. Have you done any professional reading or research regarding stuttering?	Yes = 11.4%	No = 88.6%
10. How many children who stutter have you taught?	0 = 31.4% 1 to 3 = 57.1% 4 to 6 = 11.4%	
11. Do you currently have a child in your class who stutters?	Yes = 11.4%	No = 88.6%

The number of years participants had worked in the education sector ranged from two to 35 years (mean=13.1 years), with the majority (68.6%) currently teaching Year 10 or above. Table 1 shows that none of the survey participants stutter, and a little over half of the respondents knew a person who stutters.

The demographic data in Table 1 also show that the respondents received little or no training about speech disorders. Ninety one percent (32/35) of participants indicated they had no such training or were unsure. Similar responses were found for professional reading about stuttering. Only 11% (4/35) of the teachers reported having done professional reading regarding stuttering. Nearly a third of participants had never taught a child who stutters, while 57% (20/35) had taught one to three and 11% (4/35) had taught four to six children who stutter. However, results from one of the semi-structured interviews indicate that these demographic data may not be accurate; these results will be further expanded upon in the following sections. Eleven percent (4/35) of the participants indicated that they currently had a child who stutters in their class.

Response to semantic differential adjective pairs.

The second section of the survey asked teachers to indicate their perceptions of children who stutter based on 15 pairs of bipolar adjectives, with their responses on a seven-point scale. Semantic differential adjective pairs and a seven-point scale allowed the participants to indicate their level of agreement with descriptors of children who stutter. The number of times each scale response option was selected for the 15 semantic differential questions is reported in Table 2. Medians and modes were calculated to show the middle response and most frequent response for each pair of adjectives. A mode of three or below indicated a positive perception, a mode of four was considered

Table 2
 Summary of Responses to the Semantic Differential Questionnaire

Adjective Pair	Response*							Median	Mode
	1	2	3	4	5	6	7		
Sincere – Insincere#	13	12	3	8	0	0	0	2	1
Trustworthy – Untrustworthy#	14	7	5	10	0	0	0	2	1
Decisive – Indecisive#	6	7	4	11	5	3	0	4	4
Physically normal – Physically abnormal#	23	5	2	5	1	0	0	1	1
Reliable – Unreliable#	14	6	1	11	2	2	0	2	1
Good sense of humour – Poor sense of humour#	4	7	5	18	2	0	0	4	4
Intelligent – Unintelligent#	7	5	7	17	0	0	0	3	4
Friendly – Aggressive#	6	10	4	13	3	0	0	3	4
Likeable – Unlikeable#	7	11	3	12	1	2	0	2/3	4
Self-assured – Self-conscious#	1	2	5	8	7	9	4	5	6
Extroverted - Introverted	1	1	3	11	12	5	2	5	5
Perfectionist – Careless	2	5	9	17	2	0	0	4	4
Sensitive – Insensitive	3	8	12	12	0	0	0	3	3/4
Flexible – Inflexible	2	3	5	23	1	0	0	4	4
Composed – Anxious	0	2	5	10	8	5	5	5	4

Note. *The numbers 1 to 7 indicate response options on a seven-point Likert scale, where 1 is the more positive adjective and 7 is the more negative adjective. # Adjective pairs with 36 results: one teacher ceased participating after 'Self-assured – Self-conscious'; her semantic differential results were not excluded because there was no way to establish how she responded.

neutral, and a mode of five or above was viewed as an indication of a negative perception.

Overall, Table 2 shows that teachers responded positively to 27% (4/15) of the adjective pairs, as highlighted in bold in the table. The mode for the following four adjective pairs contained the most positive response of 1: “Physically normal – Physically abnormal,” “Sincere – Insincere,” “Trustworthy – Untrustworthy,” and “Reliable – Unreliable.” Responses to a further two adjective pairs, “Friendly - Aggressive” and “Likeable – Unlikeable,” returned a mode of 2; indicating positive responses. However, the mode for the two adjective pairs “Friendly - Aggressive” and “Likeable – Unlikeable” was 4 on the Likert scale (a neutral result).

The results from two of the adjective pairs, “Self-assured – Self-conscious” and “Introverted – Extroverted,” suggested that teachers had some negative perceptions about children who stutter. “Self-assured – Self-conscious” resulted in a mode of 5, and “Introverted - Extroverted” resulted in a mode of 6: these modes indicate slightly negative results. Teachers provided neutral responses for the other nine pairs of adjectives (mode=4; or mode=3 and 4 for “Sensitive – Insensitive”).

Response to attitudinal statements.

The final part of the survey asked teachers to indicate their level of agreement with statements regarding stuttering and children who stutter. Attitudinal statements were used to further explore attitudes and perceptions teachers had towards stuttering and children who stutter. The frequency, median, and mode of each attitudinal statement are displayed in Table 3. Four of the attitudinal questions required the teachers to respond to statements regarding the nature of stuttering (statement 19), etiology of stuttering (statements 20 and 25) or prognosis for people who stutter

Table 3

Summary of Responses to Attitudinal Statements

Statement	Responses*					Median	Mode
	SA	MA	U	MD	SD		
1. A teacher should excuse children who stutter (CWS) from oral presentations or group discussions.	0	6	5	20	4	MD	MD
2. It is best for a teacher to ignore the dysfluencies of CWS.	1	12	3	7	12	MD	MA/SD
3. It is helpful to CWS for their teacher to complete words on which they experience severe dysfluency.	0	3	7	17	8	MD	MD
4. Stuttering can never be completely cured.	0	8	8	12	7	MD	MD
5. It is a good policy for teachers to make CWS repeat stuttered words until they can speak them fluently.	0	0	7	8	20	SD	SD
6. CWS should be made aware that they are different from other children.	0	1	4	5	25	SD	SD
7. Consistently applied, interruptions and commands not to stutter are useful techniques in increasing fluency.	0	0	3	5	27	SD	SD
8. CWS are more fluent when teachers insist they relax.	5	5	8	6	11	U	SD
9. Teachers need to exercise extra patience when disciplining CWS.	11	11	6	3	4	MA	SA/MA
10. It is important for teachers to be good listeners when dealing with CWS.	25	7	1	1	1	SA	SA
11. Teachers have relatively little influence on the attitudes CWS have to stuttering; children develop their own attitudes independently.	0	0	6	17	12	MD	MD
12. CWS will probably make a better adjustment to their problem if they are encouraged to openly discuss their feelings about stuttering.	3	17	8	6	1	MA	MA
13. It is natural for teachers to feel embarrassment when speaking to a CWS.	0	3	4	13	15	MD	SD
14. It is a good policy for teachers to suggest that CWS avoid certain difficult speaking situations	1	2	7	16	9	MD	MD
15. It is helpful to encourage CWS to speak rapidly so people will notice the stuttering less.	0	0	4	8	23	SD	SD

Table 3 (Continued)

16. Punishing stuttering behaviour will increase fluent speech.	0	0	1	1	33	SD	SD
17. In general, CWS are as polite socially as children who do not stutter (CWNS).	24	7	3	0	1	SA	SA
18. CWS cannot be expected to perform as well academically as CWNS.	0	0	1	3	31	SD	SD
19. There are various degrees of stuttering severity.	33	1	1	0	0	SA	SA
20. There is no relationship between fear and stuttering.	2	5	11	12	5	U	MD
21. In general, CWS can be considered as being psychologically different from CWNS.	1	3	14	10	7	U	U
22. Many children stutter as a way to get attention.	0	1	4	6	24	SD	SD
23. Punishment of CWS could create a worsening of their speech problem.	22	9	3	0	1	SA	SA
24. Teachers should caution CWS to think before they speak.	0	4	16	5	10	U	U
25. Teachers have little influence on the development of stuttering, since stuttering is probably predisposed before or at birth .	0	3	5	16	11	MD	MD
26. Teachers should advise CWS to take a deep breath before speaking.	2	9	20	2	2	U	U
27. It is helpful for CWS to be educated on the facts of stuttering.	12	16	5	2	0	MA	MA
28. Teachers are important influences in the overall process of helping CWS adjust to their speech difficulties.	13	16	4	2	0	MA	MA
29. In general, it is not as important to encourage CWS to pursue higher education, compared to CWNS.	1	0	2	0	32	SD	SD
30. CWS are generally not as responsible as CWNS.	0	0	1	1	33	SD	SD
31. Stuttering may be viewed as a preliminary sign of a character weakness.	1	0	2	2	30	SD	SD
32. Allowances should be made when evaluating the academic performance of a stutterer.	0	3	5	11	15	MD	SD

Note. *SA=Strongly Agree, MA=Moderately Agree, U=Undecided, MD=Moderately Disagree, SD=Strongly Disagree.

(statement 4). Ninety-four percent (33/35) of the teachers strongly agreed with the nature of stuttering statement, “there are various degrees of stuttering severity.” Fifty-four percent (19/35) of the teachers moderately or strongly disagreed with the statement, “stuttering can never be completely cured,” 23% (8/35) were undecided, and 23% (8/35) moderately agreed. The statement, “there is no relationship between fear and stuttering” obtained varied responses, with most teachers either undecided (31%, 11/35) or moderately disagreeing (34%, 12/35).

Six of the questions asked the teachers to respond to attitudinal statements regarding the personality traits of children who stutter (statements 6, 17, 21, 22, 30, and 31). For five of these six statements, the teachers responded positively; with modes of either strongly agree or strongly disagree (depending on the wording of the question). For example, in response to the statement, “In general, CWS are as polite socially as children who do not stutter (CWNS);” 69% (24/35) of the teachers strongly agreed, 20% (7/35) moderately agreed, 9% (3/35) were undecided, and 3% (1/35) strongly disagreed. Responding to the statement, “CWS are generally not as responsible as CWNS,” 94% (33/35) of the teachers strongly disagreed, one moderately disagreed, and one was undecided. In response to statement 21, “In general, CWS can be considered as being psychologically different from CWNS,” 40% (14/35) of the teachers were undecided, ten moderately disagreed, 20% (7/35) strongly disagreed, while 9% (3/35) moderately agreed and 3% (1/35) strongly agreed. The results indicated that teachers consider children who stutter to have positive personality traits and are undecided about whether children who stutter differ psychologically from children who do not stutter.

Three of the questions asked the teachers to respond to statements regarding the academic proficiency of children who stutter (statements 18, 29, and 32). Teachers responded positively to all three of these statements, with 89% (31/35) strongly

disagreeing with the statement that children who stutter cannot be expected to perform as well academically as children who do not stutter. Forty-three percent (15/35) of the teachers strongly disagreed, and 31% (11/35) moderately disagreed, with the suggestion, “allowances should be made when evaluating the academic performance of a stutterer.” Results indicate that teachers perceive children who stutter to be as academically capable as their fluent peers.

Thirteen of the 32 attitudinal statements concerned teachers and their influence on, strategies for, and feelings towards children who stutter (statements 1, 2, 3, 5, 8, 9, 10, 11, 13, 14, 24, 26, and 28). The teachers responded to two statements related to strategies positively (statements 5 and 10). Fifty-seven percent (20/35) of teachers indicated strong disagreement with the statement, “teachers should make children who stutter repeat stuttered words until they can speak them fluently,” and 71% (25/35) of teachers strongly agreed that it is important for teachers to be good listeners when dealing with children who stutter. Fifty-seven percent (20/35) of the teachers were undecided about advising children who stutter to take a deep breath before speaking, and 46% (16/35) were undecided about whether to caution children who stutter to think before they speak. The results indicate that teachers are somewhat unsure about the appropriate strategies to use when teaching a child who stutters.

The remaining six questions asked the teachers to respond to attitudinal statements about strategies to use with children who stutter, where the statement did not explicitly link them to teachers’ strategies (statements 7, 12, 15, 16, 23, and 27). Seventy-seven percent (27/35) of teachers strongly disagreed with the statement, “consistently applied, interruptions and commands not to stutter are useful techniques in increasing fluency.” Sixty-six percent (23/35) of teachers strongly disagreed that encouraging children who stutter to speak rapidly to make the stuttering less noticeable

was helpful; and 94% (33/35) of the teachers strongly disagreed with “Punishing stuttering behaviour will increase fluent speech.” Finally, 66% (22/35) of the teachers strongly agreed that punishing children who stutter could worsen their speech problem.

The online survey consisted of three components. The demographic section indicated who was participating in the survey and included questions regarding age, teaching experience, experience with stuttering, and knowledge about stuttering. The majority of participants were women, New Zealand European, with little or no experience or training regarding stuttering, and who did not stutter themselves. Results from the semantic differential adjective pairs indicated that teachers held mainly neutral or positive perceptions of children who stutter. The responses to the attitudinal statements showed that teachers generally had positive attitudes towards stuttering and children who stutter.

Qualitative Results: Semi-structured Interviews

Semi-structured interviews were conducted with two teachers who participated in the survey; they indicated that they were willing to be interviewed about their perceptions and experiences with children who stutter. Both interviewees were male secondary school teachers. Interviewee 1 had 31 years teaching experience and had taught one child with a significant stutter¹ for five years in the context of a Visual Performing Arts (VPA) class. Interviewee 2 was in charge of learning support at a large secondary school. Along with his identical twin brother, Interviewee 2 had grown up with a stutter, which persisted into adulthood. This was not entirely consistent with the demographic data, since there were no demographic responses that indicated any of the participants stuttered.

¹ Interviewee 1 indicated that he had answered “1-3” to the demographic question “How many children who stutter have you taught” in the online survey. However, during the interview he stated that he had taught other children who stutter, but he did not count them because they were “casual stutterers”.

Based on the two interviews, common themes emerged. The three prevailing themes were; *Neutral Concept of Children who Stutter*, *Stuttering is Not a Barrier*, and *Teacher Perceptions Matter*. Each of the themes will be expanded upon in the following sections.

Neutral concept of children who stutter.

The interviewees were asked about their perceptions of children who stutter. Both interviewees appeared to be neutral and non-judgemental when discussing their perceptions of children who stutter. When asked to describe a typical child who stutters, Interviewee 1 replied “Average, individual. Stuttering doesn’t feature.” When asked whether children who stutter were less intelligent than children who do not stutter he emphatically stated, “Hell no!” Interviewee 2 was adamant that children who stutter are as capable as any other student, while recognising that each child has individual needs; adding that teachers need to “take each student as he comes” because one rule will not necessarily fit all children.

Both interviewees had teaching or personal experience with children who stutter. When asked about children who stutter and the school experience for children who stutter, Interviewee 1 posited that general discernible differences have a definite impact on the children with the difference. Tolerance is achieved through increased social equity and differences between children minimised through the acquisition of peers. Interviewee 1 perceived that stuttering behaviours were probably caused by anticipating negative outcomes and feelings of inadequacy, “ramped up” by anxiety. Interviewee 2 was unsure what caused stuttering and stuttering behaviours. Both interviewees appeared to be tolerant and non-judgemental concerning children who stutter; viewing children who stutter in a neutral or supportive manner.

Stuttering is not a barrier.

Part of the semi-structured interviews addressed whether stuttering prevented children who stutter from achieving academically or getting maximum benefit from all aspects of school. Neither interviewee agreed that stuttering should be a barrier for children academically or experientially. At the conclusion of his interview, Interviewee 1 summarised his perceptions of stuttering, “it’s not a barrier to living; it’s a barrier to communicating.” Interviewee 2 suggested that it is “not a good idea [for children who stutter] to opt out” of verbal tasks, then added that each situation needs to be assessed individually, and an alternative task may be appropriate for some children who stutter. Interviewee 2, who stuttered as a child, recounted his own experiences and shared that he never let his stutter prevent him from doing what he wanted to do. He often used humour to deflect attention away from his speech, adding, “you don’t make light of it, but you put light in.”

Teacher perceptions matter.

Interviewee 1 shared that he had received no training about working with children with disabilities, adding that he had received “no training about working with children *at all*.” However, his teaching experiences with a child who stutters prompted him to conduct independent research on stuttering. He reported that he could not understand why any teacher would not do likewise, adding, “someone who is focused on the well-being of a student can learn anything.” Interviewee 2 did not have any formal training concerning stuttering; however, he was able to use his own experiences of stuttering as a child to assist children who stutter. Thinking back over his 35 year career in education, Interviewee 2 was positive that teacher perceptions of children with any disability along with the services available has improved significantly. Interviewee 1 perceived that most teachers would do their best to help children who stutter; the

remaining teachers, who may not innately help a child who stutters, need to be taught to be tolerant of differences and “to give a damn.” Likewise, Interviewee 2 believed that it is important for teachers to recognise that, “it’s not about the messenger, it’s about the message,” and children who stutter “need empathy, not sympathy.”

The two semi-structured interviews yielded qualitative data which indicated neutral, non-judgemental perceptions of and support for children who stutter. The interview data supported the quantitative survey data. The mixed methods support the findings that teachers generally have positive perceptions of stuttering and children who stutter.

Discussion

The current study investigated school teachers' perceptions of stuttering and children who stutter. Responses were obtained from 35 teachers who participated in an online survey; two of whom also participated in semi-structured interviews.

The semantic differential adjective pairs showed teachers tended to provide neutral or positive responses to questions about children who stutter. Additionally, responses to the attitudinal statements suggested that teachers have a generally positive view of children who stutter. Participants reported having little education about or experience with children who stutter, this may have had an effect on the manner in which teachers responded. However, the anonymity of respondents and design of the survey prevented direct comparison between these factors and teachers' perceptions of children who stutter.

In contrast to the current findings, previous research into teacher attitudes towards children who stutter has found negative perceptions of people who stutter (Lass et al., 1994; Lass et al., 1992; Yeakle & Cooper, 1986). For example, Lass et al. (1992) asked teachers to list adjectives describing people who stutter; 67% of the adjectives were negative (for example; shy, nervous, and insecure). However, a positive shift in teacher attitudes was detected by Irani and Gabel (2008), who found teachers described both people who stutter and fluent speakers positively. Methodological differences between Irani and Gabel (2008) and the earlier research (Lass et al., 1994; Lass et al., 1992; Yeakle & Cooper, 1986) means that the results are not directly comparable.

The current study aimed to gauge teachers' perceptions of stuttering and children who stutter. Due to the anonymous nature of the survey and the absence of questions further exploring some of the demographic details, the responses provided by the participants need to be viewed as a snapshot of the 35 participating teachers. For

example, teachers were asked whether their teacher training had dealt with disorders of speech, and whether they had done any professional reading or research regarding stuttering. Two teachers answered “yes” to the teacher training question, and four answered “yes” to the professional reading question; however, the precise nature of the training and reading or research was not investigated. The survey design ensured participants could not be identified based on their demographic responses. Because of this, the current study was unable to compare directly educational and experiential factors with teacher attitudes and perceptions of stuttering and children who stutter.

Teacher Perceptions of the Nature of Stuttering

Some of the attitudinal statements were used to evaluate teacher perceptions of the nature of stuttering. Aside from the statement suggesting that there are various degrees of stuttering severity, which the majority of participants strongly agreed with, the teachers appeared to be unsure about statements concerning aspects of the nature of stuttering, such as etiology and prognosis. This is possibly due to the lack of training or professional reading about stuttering indicated by the participants in this study. Even so, training or professional reading may have had little or no effect, considering experts and speech-language professionals still have many unanswered questions regarding stuttering etiology.

The statement, “Stuttering can never be completely cured,” showed a number of participants were unsure, while many other teachers thought stuttering was curable. The statement, “there is no relationship between fear and stuttering,” which received responses in every option and the majority of responses spread across, “Moderately disagree” and “Undecided.” This participant uncertainty suggests that the teachers did not know about the nature of stuttering; which may be due to a lack of education or training.

The responses to statement 25, “Teachers have little influence on the development of stuttering, since stuttering is probably predisposed before or at birth,” suggest that teachers are aware of their potential influence on children who stutter. However, the wording of statement 25 does contain multiple interpretations. The answer teachers gave may have been in response to the first part of the statement, “Teachers have little influence on the development of stuttering,” the second part of the statement, “since stuttering is probably predisposed before or at birth,” or the statement as a whole. Results from the attitudinal statements pertaining to the nature of stuttering indicated teachers were unsure about the etiology and prognosis of stuttering.

Both interviewees corroborated the survey findings that teachers lack knowledge about the etiology of stuttering. Neither interviewee claimed to know the etiology of stuttering and suggested childhood trauma, anxiety, hormones, adrenaline, genetics, and a neurological basis as possible explanations. Interviewee 2 stated that the etiology is “still a bit of a mystery” and conceded that most teachers did not understand stuttering. In contrast to the majority of the survey participants, both interviewees had researched stuttering and assumed other teachers with a child who stutters in their class would do likewise.

Teacher Perceptions of the Personality Traits of Children who Stutter

The intention of the current study was to investigate teachers’ perceptions of stuttering and children who stutter. In order to determine their perceptions the teachers were asked about the personality traits of children who stutter. Two sections of the survey indicated differing results regarding the way teachers perceive the personality traits of children who stutter. Results from the semantic differential adjective pairs suggested teachers had a neutral view of children who stutter, for example, ‘Perfectionist - Careless’ and ‘Composed - Anxious’ returned a mode of 4. In contrast,

teachers provided positive perceptions about personality characteristics of children who stutter using the attitudinal statements. Responses to the attitudinal statements show that teachers have a generally positive perception of the personality traits of children who stutter. For example, 94% (33/35) of teachers strongly disagreed that children who stutter are not as responsible as children who do not stutter.

Data from the semantic differential part of the survey show that teachers responded in a neutral manner to nine of the 15 adjective pairs, as shown in Table 2. This indicates a shift away from the predominantly negative personality traits of people who stutter as perceived by teachers, found in previous research. The negative personality traits included shy, nervous, insecure, withdrawn, and self-conscious (Lass et al., 1994; Lass et al., 1992; Yeakle & Cooper, 1986). Results from the current study also help strengthen the assertion by Irani and Gabel (2008) that teachers' perceptions of children who stutter and attitudes towards stuttering are becoming more neutral. Nine adjective pairs were used in both the current and Irani and Gabel (2008) studies; four of the nine pairs received the most positive responses in both studies. Results for these four adjective pairs ("Physically normal – Physically abnormal," "Sincere – Insincere," "Trustworthy – Untrustworthy," and "Reliable – Unreliable") indicated positive perceptions in the current study. While the explanation for these reoccurring survey responses is unknown, further studies may be able to provide clarification.

Not all adjective pairs returned positive or neutral responses. Two adjective pairs received responses in every option on the scale: "Self-assured – Self-conscious" and "Extroverted – Introverted." Based on mode responses (6 and 5 respectively), the results for these two adjective pairs indicated negative perceptions; however, both adjective pairs received 46% (16/35) of responses in the positive or neutral range. "Extroverted – Introverted" can be somewhat ambiguous in regard to positive and

negative traits. For the purposes of this study, “Extroverted” was deemed a positive trait, but the possibility that some respondents viewed “Introverted” as a more desirable trait should not be dismissed. Introversion (Betz et al., 2008) and self-consciousness (Hughes et al., 2010; Lass et al., 1994) have been identified as commonly perceived personality traits for people who stutter. Research has shown that the presence of a negative stereotype (MacKinnon et al., 2007) or the act of stuttering itself (Ginsberg, 2000) can increase self-consciousness in people who stutter. Whilst these data suggest listeners had negative perceptions about children who stutter for two adjective pairs, they also indicate that opinion was divided. The participants gave a spread of responses. Therefore, it would be inappropriate to state conclusively that teachers had a negative perception of children based on data of these two ambiguous adjective pairs. Some of the results might relate to the teachers’ perceptions of the adjectives rather than of children who stutter, such as “Extroverted,” which may have been perceived as negative by some participants.

The attitudinal statements included six statements regarding the personality traits of children who stutter. Perceptions of the personality characteristics of children who stutter has received considerable attention; research has indicated predominantly negative perceptions from a range of people including teachers (Daniels et al., 2012; Lass et al., 1992) and school administrators (Lass et al., 1994). In the current study, responses to five of the six “personality traits of children who stutter” attitudinal statements indicated that teachers perceived children who stutter in a positive manner. These data indicate that teachers perceive children who stutter as polite and as responsible as their fluent peers; teachers do not perceive stuttering as a preliminary sign of a character weakness. Crowe and Walton (1981) got similar responses to identical statements; the most significant difference was the number of participants who

strongly disagreed that stuttering is a preliminary sign of a character weakness, which rose from 60% (Crowe & Walton, 1981) versus 86% in the current study. Results indicate that the teachers perceived the personality traits of children who stutter in a positive manner.

Results from the attitudinal statements showed teachers do not believe children who stutter should be made aware that they are different from other children. Additionally, teachers did not think that stuttering was used as a way for children to gain attention. One attitudinal statement regarding personality traits of children who stutter indicated that teachers were unsure about whether children who stutter are psychologically different from children who do not stutter. In response to this statement, more participants selected “Undecided” than any other option, and 49% (17/35) responded with either “Moderately disagree” or “Strongly disagree.” Together with the neutral responses to statements concerning the etiology of stuttering, this suggests that teachers do not know what causes and maintains stuttering. The results may also relate to the limited exposure the teachers have had to children who stutter. It is reasonable for teachers to be unsure about the etiology of stuttering; the explanation is still elusive for experts and researchers into stuttering (Ambrose, 2004; Onslow, 2004).

Results from the attitudinal statements and adjective pairs are supported by comments provided by the interviewees. Both interviewees agreed that children who stutter are relatively normal children who have an extra difficulty (that is, stuttering) to overcome. While Interviewee 1 described one student who stuttered as “self-abasing,” “unconfident,” and who “retreated from communicating,” the teacher added it appears others defined the student by his stutter. Fictional characters often are defined by their stutter in order to service the story in popular culture (Johnson, 2012); Cuddy et al.

(2008) point out the unfortunate stigmatisation of a single trait defining the character of a person, with or without their consent. That is, a person who stutters may be stereotyped negatively by another individual who makes a judgement on the basis of an unpleasant experience with another person who stutters. In an educational context, a child who stutters may have a teacher who has previously taught another child who stutters ; if the teacher struggled to find an effective strategy to help the previous child, the current child who stutters may be unfairly perceived and treated by the teacher.

Teacher Perceptions of the Academic Proficiency of Children who Stutter

The only adjective pair related to academic proficiency was “Intelligent – Unintelligent,” which received 47% (17/36) neutral responses. The remaining 19 responses were all on the positive side of neutral, indicating that teachers perceive children who stutter to be at least as intelligent as children who do not stutter. This represents a positive shift away from the attitudes found in previous research (Lass et al., 1994; Lass et al., 1992; Yeakle & Cooper, 1986) and is important due to the evidence that a negative stuttering stereotype can have a negative effect on academic progression. This negative attitude occurs because of stereotype threat: if a stuttering stereotype expects people who stutter to have lower intelligence, people who stutter become aware of the stereotype, then lower their expectations of themselves and fulfil the stereotype through lower achievement.

Three attitudinal statements asked for teachers’ perceptions about the academic proficiency of children who stutter. The data suggest that teachers tend to perceive children who stutter to be as capable as children who do not stutter. Results also indicated that teachers believe children who stutter should be encouraged to pursue higher education. While still positive, teachers were not as certain about making allowances, such as excusing a child who stutters from a verbal task, when evaluating

the academic performance of a child who stutters. This is possibly due to uncertainty of the long-term benefit of making such allowances for children who stutter. Previous research has consistently found that stuttering can have negative educational implications for children who stutter, and lack of academic progress is a common covert symptom of stuttering (Lass et al., 1992; Thatcher et al., 2008). There are established links between communication difficulties and problems with social and behavioural skills, which can have a negative impact on academic attainment (Thatcher et al., 2008).

The interviews were able to delve deeper into the teachers' perceptions of the academic ability of children who stutter. Comments gleaned from the interviewees supported the position that children who stutter are as academically proficient as their fluent peers. Interviewee 1 was adamant that stuttering is no impediment to academic achievement. He clarified that a child who stutters has a communication barrier, not to be mistaken as a life barrier. Interviewee 2, speaking from his experiences of stuttering as a child, shared the perspective, suggesting that stuttering is no barrier to anything a child puts his mind to. Like Crowe and Walton (1981), the current study suggests that teachers do not view stuttering as an impediment to academic achievement.

Role of the Teacher

A range of responses were collected from the attitudinal statements regarding teacher and classroom strategies for working with children who stutter. The variety of responses suggest a couple of interpretations: there is no standard teaching and classroom strategy, nor are teachers aware of what is needed to assist children who stutter in the classroom. The results showed that teachers were undecided on certain classroom strategies, such as whether they should advise children who stutter to take a deep breath before speaking, and if they should caution children who stutter to think before they speak. Teachers were also uncertain about whether it was a good strategy to

complete words for children who stutter, if they should excuse children who stutter from oral presentations, and whether they should advise children who stutter to avoid certain speaking situations. Twelve teachers moderately agreed and 12 other teachers strongly disagreed with the statement suggesting that teachers should ignore the dysfluencies of children who stutter, indicating some uncertainty regarding that particular strategy. Teachers were somewhat more confident that they need to be good listeners, they should exercise extra patience, and they should not make children who stutter repeat stuttered words until they can say them fluently.

Both interviewees noted that teachers had increased certainty regarding children who stutter and that it could possibly be due to the increased expectation that tolerance and understanding is part of their role as teachers. For example, Interviewee 1 pointed out that newer teachers do not understand stuttering any better than older teachers; however, they were trained to be tolerant of differences, which helps to prepare them for teaching children with disabilities. It could also be simply a result of observing other teachers or parents interacting with children who stutter (Marshall, Ralph, & Palmer, 2002).

Results regarding the role of the teacher reflect lack of training, education, or experience concerning stuttering. In the current study, 91% (32/35) of the participants had no training working with disorders of speech, 89% (31/35) had not done any professional reading or research regarding stuttering, and 31% (11/35) had never taught a child who stutters.

Overall, results from the survey and interviews suggest several different perceptions concerning the role of the teacher. The results acknowledge the individual nature of stuttering; if children who stutter do so in different ways and with different behaviours, then the response from the teacher must differ for each child who stutters.

This study was designed to determine if a correlation existed between the lack of training and education in stuttering and the manner in which participants responded to the survey. However, previous research has linked teachers increased experience and education regarding stuttering with improved acceptance of children who stutter and higher competence when dealing with stuttering (Crowe & Walton, 1981; Daniels et al., 2012; Panico et al., 2011; Yeakle & Cooper, 1986).

However, Yeakle and Cooper (1986) add that it cannot be assumed that education or experience concerning stuttering will cause teachers to change their perspective, citing the fact that many speech-language professionals have similar concerns as teachers regarding working with children who stutter. Irani and Gabel (2008) concluded that educational and experiential factors had no effect on teachers attitudes towards people who stutter. Third, teachers who have former experience teaching a child who stutters may assume their former teaching strategies will work for the next child who stutters. The individual nature and behavioural patterns of people who stutter mean that there is no standardised strategy that will be effective for every person who stutters.

Knowledge of stuttering has been shown to affect perceptions of stuttering and people who stutter. Familiarity with one person who stutters can cause a fluent person to generalise their impressions to all people who stutter (Hughes et al., 2010). Likewise, exposure to stuttering has allowed teachers to be more confident and proactive with children who stutter; as well as teachers developing more positive attitudes towards children who stutter (Crowe & Walton, 1981; Yeakle & Cooper, 1986).

Social distance is also a probable factor in increasing favourable attitudes and realistic classroom expectations (Boyle et al., 2009). Social distance is a measure of the

difference between two groups in society, and can be based on disability (Karakayali, 2009). These concepts were supported by the interview responses, which also supported the outcomes from the attitudinal statements. Both interviewees agreed that most teachers would do their best to help a child who stutters; and they suggest teachers need to exercise tolerance and acceptance, and “to give a damn” about students with any disability. Interviewee 2 made the point that it is vital to focus on the message rather than the messenger; thus supporting the importance of teachers recognising the distinction between the person who stutters and the person’s stutter, to lessen the likelihood that a child who stutters will become defined by his stutter. Results indicate that most teachers recognise the need for tolerance and acceptance of children who stutter, and would do their best to help those children despite a lack of knowledge regarding stuttering.

Influence of the Teacher

The results of the current study showed teachers consider they have an influence on the attitudes children who stutter have towards stuttering, and they play an important role in helping children who stutter adjust to their speech difficulties. Eighty percent (28/35) of teachers agreed that it is unnatural to feel embarrassment when speaking to a child who stutters; inconsistent with current research showing stuttering invokes uncontrollable physiological responses from the listener, causing feelings of discomfort and embarrassment (Guntupalli et al., 2006). This result also contradicts the anchoring and adjustment heuristic, suggesting stereotypes about people who stutter form as a result of people listening to them speak, feeling discomfort (including embarrassment), and assuming that the person who is stuttering feels the same way. It is possible that the results from this statement were influenced by social desirability bias, which will be expanded upon in the following section.

Possible Response Bias

Overall, there were a large number of neutral responses to the items in the semantic differential survey. For nine of the 15 adjective pairs, the majority of participants responded with a 4 (neutral) on the 7 point scale. It is possible that the prevalence of neutral results is due to response bias. A weakness of Likert scales is their susceptibility to central tendency bias, social desirability bias, and acquiescence bias (Coolican, 2004). All three forms of bias may have occurred in the current study. Although the presence of semi-structured interviews counters bias to a degree, the current study had two interviewees, which were not representative of the sample.

Central tendency bias is when respondents avoid using extreme response categories unless they already hold very strong opinions about the subject (Coolican, 2004). This form of bias may have occurred if teachers did not know how to respond due to limited knowledge about stuttering or a lack of experience with people who stutter. If so, teachers may have avoided the response options at either end of the scales, resulting in moderate or neutral answers. Forty-two percent (15/35) of the participants indicated that they did not know anyone who stutters, which may have made it difficult for them to respond to the semantic differential questions and some of the attitudinal statements. The possibility of central tendency bias cannot be discounted.

Social desirability bias occurs when respondents provide answers which are socially acceptable, or politically correct, rather than giving their genuine viewpoint (Coolican, 2004). The current study asked teachers to provide answers that could be perceived as negative attitudes towards children who stutter; which may be unacceptable for a member of their profession. Taking into account political correctness, participants may have been reluctant to convey negative perceptions on a semantic differential scale or responding to attitudinal statements. While it is difficult

to assess the possibility of this type of bias, some research has attempted to use psychophysiological gauges to do so. As discussed previously, Guntupalli et al. (2006) measured skin conductance and heart rate fluctuations in fluent adults who were watching video clips of people stuttering, and found that participants experienced uncontrollable adverse physiological responses. Guntupalli et al. (2006) showed that the manner in which people react overtly to stuttering is not necessarily consistent with what they are feeling. Similarly, social desirability bias suggests that people may provide politically correct responses in spite of possessing a differing point of view. Even so, an individual may still make a decision to answer questions in whatever manner they wish. In the current study, the teachers received no reimbursement for their participation and their identity was kept anonymous. Therefore, it is reasonable to believe the participants did not have any strong motivation to provide insincere answers.

There is also the possibility that participants may have responded in a way which agreed with the statements as they were presented because they assume that is the answer the researcher is looking for, causing acquiescence bias. In the current study, participation in the survey was anonymous and participants were not known to the researcher. Although unlikely, participants may have answered in a manner which they assumed the researcher was looking for. For example, 94% (33/35) of participants strongly agreed that, "There are various degrees of stuttering severity;" the statement was presented as a fact, and participants may have assumed that the researcher was an expert in the area of stuttering, or it may be simply that participants genuinely agreed with the statement. This study had the potential to be affected by three forms of response bias, and central tendency bias may have been a factor in the neutral perceptions of children who stutter indicated by the adjective pairs,

Limitations

There are limitations to any research, including the current study. One factor that may affect interpretation or generalisation of the results is small sample size. The small sample size of the survey suggests it is not representative of the New Zealand teacher population, and therefore limits the generalisability of the quantitative results of the study. This is also applicable for the qualitative data obtained from the two semi-structured interviews. While the interviewees' responses were insightful and valuable, the interviewees were not representative of the survey sample. Both interview participants were male, whereas 80% (28/35) of the survey participants were female; Interviewee 2 stuttered as a child, whereas none of the survey participants indicated they had a history of stuttering. Interviewee 2's history of stuttering may have resulted in some degree of bias in his responses due to lived experience with stuttering. A small sample, not representative of the population, limits the interpretation of results and generalisability of this study.

The confusion surrounding many aspects of stuttering means that stuttering is difficult to define. In this study, participants were not given a definition of stuttering, and responded to the survey based on their personal schema of stuttering. Among other factors, participants' schemas of stuttering were based on experiences with people who stutter, knowledge of stuttering, and portrayals of stuttering in popular culture (Hughes et al., 2010). Future research may find providing a written definition of stuttering for participants to read before a survey commences advantageous.

Another limitation of the current study was the failure to explore the relationship between participants' perceptions of stuttering and participants' experiential and educational factors. The demographic component of the survey revealed the participants' experience with stuttering was based on: the number of children who

stutter they had taught, whether they knew any people who stutter, and whether they had any training or had done any research concerning stuttering. However, the demographic information did not include specific details into the nature of training, education, and experience with stuttering and children who stutter. Additional information of this type would allow the researcher to clarify the level of educational and experience present in the sample, and may have provided an opportunity to compare these factors with teacher perceptions of stuttering in relation to individuals with no experience.

Conclusions

While the current study indicates a positive shift in teacher perceptions of stuttering, corroboration of the results should be obtained through further studies. Replication of the current study with a greater number of participants would be valuable for reliability, and different methodologies would serve to investigate aspects not explored in this study, for example, the effect of experiential and educational factors on teacher perceptions of stuttering. The quantitative results suggest that an emphasis on teacher education about stuttering is warranted, and the development of healthy and helpful techniques and strategies for utilisation in the classroom would be advantageous for children who stutter and teachers alike.

The results from the semantic differential adjective pairs and the attitudinal statements in this study suggest that teachers have neutral or positive perceptions of stuttering and children who stutter. . However, they were indecisive or uncertain about statements concerning the nature and etiology of stuttering, along with the role of the teacher. The teachers did not associate negative personality characteristics with children who stutter and did not perceive stuttering as a barrier to academic achievement. Overall, the results from this study indicate that there appears to be a shift away from the predominantly negative perceptions of children who stutter in previous research. Therefore, the data suggest the teachers in this study do not necessarily adhere to a negative stuttering stereotype.

References

- Ambrose, N. G. (2004). Theoretical perspectives on the cause of stuttering. *Contemporary Issues in Communication Science and Disorders, 31*, 80-91.
- Ambrose, N. G. (2006). Early stuttering: Parent counseling. In N. B. Ratner & J. Tetnowski (Eds.), *Current issues in stuttering research and practice* (pp. 87-98). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Ambrose, N. G., Yairi, E., & Cox, N. (1993). Genetic aspects of early childhood stuttering. *Journal of Speech, Language and Hearing Research, 36*(4), 701.
- American Psychiatric Association; DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, D.C.: American Psychiatric Publishing.
- Anderson, J. D., & Conture, E. G. (2000). Language abilities of children who stutter: A preliminary study. *Journal of Fluency Disorders, 25*, 283-304.
- Arndt, J., & Healey, E. C. (2001). Concomitant disorders in school-age children who stutter. *Language, Speech, and Hearing Services in Schools, 32*, 68-78.
- Bernstein Ratner, N., & Silverman, S. (2000). Parental perceptions of children's communicative development at stuttering onset. *Journal of Speech, Language and Hearing Research, 43*, 1252-1263.
- Betz, I. R., Blood, G. W., & Blood, I. M. (2008). University students' perceptions of pre-school and kindergarten children who stutter. *Journal of Communication Disorders, 41*, 259-273.

- Biermann-Ruben, K., Salmelin, R., & Schnitzler, A. (2005). Right rolandic activation during speech perception in stutterers: A MEG study. *NeuroImage*, *25*, 793-801.
- Blood, G. W., Blood, I. M., Tramontana, G. M., Sylvia, A. J., Boyle, M. P., & Motzko, G. R. (2011). Self-reported experience of bullying of students who stutter: Relations with life satisfaction, life orientation, and self-esteem. *Perceptual and Motor Skills*, *113*(2), 353-364.
- Blood, G. W., Ridenour, V. J., Qualls, C. D., & Hammer, C. S. (2003). Co-occurring disorders in children who stutter. *Journal of Communication Disorders*, *36*(6), 427-448.
- Bloodstein, O., & Bernstein Ratner, N. (2008). *A Handbook on Stuttering* (6th ed.). Clifton Park, NY: Delmar.
- Bonelli, P., Dixon, M., & Bernstein Ratner, N. (2000). Child and parent speech and language following the Lidcombe Programme of early stuttering intervention. *Clinical Linguistics & Phonetics*, *14*(6), 427-446.
- Boyle, M. P., Blood, G. W., & Blood, I. M. (2009). Effects of perceived causality on perceptions of persons who stutter. *Journal of Fluency Disorders*, *34*(3), 201-218.
- Buchel, C., & Sommer, M. (2004). What causes stuttering? *PLoS Biology*, *2*(2), 159-163.
- Comings, D. E., Wu, S., Chiu, C., Ring, R. H., Gade, R., Ahn, C., . . . Muhleman, D. (1996). Polygenic inheritance of tourette syndrome, stuttering, attention deficit hyperactivity, conduct, and oppositional defiant disorder: The additive and

subtractive effect of the three dopaminergic genes - DRD2, DPH, and DAT1. *American Journal of Medical Genetics (Neuropsychiatric Genetics)*, 67(264-288).

Coolican, H. (2004). *Research methods and statistics in psychology* (4th ed.). London, UK: Hodder Arnold.

Cooper, E. B., & Cooper, C. S. (1996). Clinician attitudes towards stuttering: Two decades of change. *Journal of Fluency Disorders*, 21, 119-135.

Costa, D., & Kroll, R. (2000). Stuttering: An update for physicians. *Canadian Medical Association Journal*, 162(13), 1849-1855.

Crowe, T. A., & Walton, J. H. (1981). Teacher attitudes toward stuttering. *Journal of Fluency Disorders*, 6, 163-174.

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the BIAS map. *Advances in Experimental Social Psychology*, 40, 61-149.

Daniels, D. E., Gabel, R. M., & Hughes, S. (2012). Recounting the K-12 school experiences of adults who stutter: A qualitative analysis. *Journal of Fluency Disorders*, 37, 71-82.

De Nil, L. (1999). Stuttering: A neurophysiologic perspective. In N. Bernstein Ratner & E. C. Healey (Eds.), *Stuttering research and practice: Bridging the gap* (pp. 85-102). Mahwah, NJ: Lawrence Erlbaum.

- Doody, I., Kalinowski, J., Armson, J., & Stuart, A. (1993). Stereotypes of stutterers and nonstutterers in three rural communities in Newfoundland. *Journal of Fluency Disorders, 18*, 363-373.
- Dorsey, M., & Guenther, R. K. (2000). Attitudes of professors and students towards college students who stutter. *Journal of Fluency Disorders, 25*, 77-83.
- Dworzynski, K., Remington, A., Rijdsdijk, F., Howell, P., & Plomin, R. (2007). Genetic etiology in cases of recovered and persistent stuttering in an unselected, longitudinal sample of young twins. *American Journal of Speech-Language Pathology, 16*, 169-178.
- Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology, 87*(3), 327-339.
- Evans, D., Healey, E. C., Kawai, N., & Rowland, S. (2008). Middle school students' perceptions of a peer who stutters. *Journal of Fluency Disorders, 33*, 203-219.
- Fogle, P. T. (2012). *Essentials of communication sciences & disorders*. Clifton Park, NY: Delmar Cengage Learning.
- Fox, P. T., Ingham, R. J., Ingham, J. C., Zamarripa, F., Xiong, J.-H., & Lancaster, J. L. (2000). Brain correlates of stuttering and syllable production: A PET performance-correlation analysis. *Brain, 123*, 1985-2004.
- Freeman, K. A., & Friman, P. C. (2004). Using simplified regulated breathing with an adolescent stutterer: Application of effective intervention in a residential context. *Behavior Modification, 28*(2), 247-260.

- Gabel, R. M., Blood, G. W., Tellis, G. M., & Althouse, M. T. (2004). Measuring role entrapment of people who stutter. *Journal of Fluency Disorders, 29*(1), 27-49.
- Gilman, M., & Yaruss, J. S. (2000). Stuttering and relaxation: Applications for somatic education in stuttering treatment. *Journal of Fluency Disorders, 25*, 59-76.
- Ginsberg, A. P. (2000). Shame, self-consciousness, and locus of control in people who stutter. *The Journal of Genetic Psychology, 161*(4), 389-399.
- Gottwald, S. R., & Starkweather, C. W. (1995). Fluency intervention for preschoolers and their families in public schools. *Language, Speech, and Hearing in Schools, 26*, 117-126.
- Guitar, B. (2006). *Stuttering: An integrated approach to its nature and treatment* (3rd ed.). Baltimore: Lippincott Williams & Wilkins.
- Guntupalli, V. K., Kalinowski, J., Nanjundeswaran, C., Saltuklaroglu, T., & Everhart, D. E. (2006). Psychophysiological responses of adults who do not stutter while listening to stuttering. *International Journal of Psychophysiology, 62*(1), 1-8.
- Hall, N. E., Wagovich, S. A., & Ratner, N. B. (2007). Language considerations in childhood stuttering. In E. G. Conture & R. F. Curlee (Eds.), *Stuttering and related disorders of fluency* (pp. 153-167). New York: Thieme.
- Hearne, A., Packman, A., Onslow, M., & Quine, S. (2008). Stuttering and its treatment in adolescence: The perceptions of people who stutter. *Journal of Fluency Disorders, 33*, 81-98.
- Hughes, S., Gabel, R., & Irani, F. (2011). Fluent speakers' advice for communicating with people who stutter: The concept of mutual help and its effects on successful

stuttering management. In E. L. Simon (Ed.), *Psychology of stereotypes: Psychology of emotions, motivations and actions* (pp. 1-46). New York: Nova Science Publishers.

Hughes, S., Gabel, R., Irani, F., & Schlagheck, A. (2010). University students' explanations for their descriptions of people who stutter: An exploratory mixed model study. *Journal of Fluency Disorders, 35*, 280-298.

Ingham, R. J., Fox, P. T., Ingham, J. C., Xiong, J., Zamarripa, F., Hardies, L. J., & Lancaster, J. L. (2004). Brain correlates of stuttering and syllable production: Gender comparison and replication. *Journal of Speech, Language and Hearing Research, 47*, 321-341.

Irani, F., & Gabel, R. (2008). Schoolteachers' attitudes towards people who stutter: Results of a mail survey. *Canadian Journal of Speech-Language Pathology and Audiology, 32*(3), 129-134.

Iverach, L., Jones, M., O'Brian, S., Block, S., Lincoln, M., Harrison, E., . . . Onslow, M. (2009). The relationship between mental health disorders and treatment outcomes among adults who stutter. *Journal of Fluency Disorders, 34*(1), 29-43.

Ivoskuviene, R., & Makauskienė, V. (2009). Experiences of teachers working with children who stammer. *Specialusis Ugdymas, 1*(20), 93-100.

Jezer, M. (1997). *Stuttering: A life bound up in words*. New York: Basic Books.

Johnson, J. K. (2012). The hero with a thousand dysfluencies: The changing portrayals of people who stutter. In L. C. Rubin (Ed.), *Mental illness in popular media:*

Essays on the representation of disorders (pp. 11-24). Jefferson, N.C.:
McFarland & Co.

Kahneman, D., Slovic, P., & Tversky, A. (Eds.). (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge; NY: Cambridge University Press.

Kalat, J. W. (2007). *Biological psychology* (9th ed.). Belmont, CA: Thomson
Wadsworth.

Kalinowski, J., Armson, J., Stuart, A., & Lerman, J. W. (1993). Speech clinicians' and
the general public's perceptions of self and stutterers. *Journal of Speech-
Language Pathology and Audiology*, 17(2), 79-85.

Karakayali, N. (2009). Social distance and affective orientations. *Sociological Forum*,
24(3), 538-562.

Klassen, T. R. (2002). Social distance and the negative stereotype of people who stutter.
Journal of Speech-Language Pathology and Audiology, 26(2), 90-99.

Kraft, S. J., & Yairi, E. (2012). Genetic bases of stuttering: The state of the art, 2011.
Folia Phoniatica et Logopaedica, 64(1), 34-47.

Lass, M. J., Ruscello, D. M., Pannbacker, M. D., Schmitt, J. F., Kiser, A. M., Mussa, A.
M., & Lockhart, P. (1994). School administrators' perceptions of people who
stutter. *Language, Speech, and Hearing Services in Schools*, 25, 90-93.

Lass, M. J., Ruscello, D. M., Schmitt, J. F., Pannbacker, M. D., Orlando, M. B., Dean,
K. A., . . . Bradshaw, K. H. (1992). Teachers' perceptions of stutterers.
Language, Speech, and Hearing Services in Schools, 23, 78-81.

- Lattermann, C., Shenker, R. C., & Thordardottir, E. (2005). Progression of language complexity during treatment with the Lidcombe program for early stuttering intervention. *American Journal of Speech-Language Pathology, 14*, 242-253.
- Lewis, C., Packman, A., Onslow, M., Simpson, J. M., & Jones, M. (2008). A phase II trial of telehealth delivery of the Lidcombe program of early stuttering intervention. *American Journal of Speech-Language Pathology, 17*, 139-149.
- Liotti, M., Ingham, J. C., Takai, O., Paskos, D. K., Perez, R., & Ingham, R. J. (2010). Spatiotemporal dynamics of speech sound perception in chronic developmental stuttering. *Brain & Language, 115*(2), 141-147.
- Mackie, D. M., Hamilton, D. L., Suskind, J., & Rosselli, F. (1996). Social psychological foundations of stereotype formation. In C. N. Macrae, C. Stangor & M. Hewstone (Eds.), *Stereotypes and Stereotyping*. New York: The Guilford Press.
- MacKinnon, S. P., Hall, S., & MacIntyre, P. D. (2007). Origins of the stuttering stereotype: Stereotype formation through anchoring-adjustment. *Journal of Fluency Disorders, 32*(4), 297-309.
- Manning, W. H. (2010). *Clinical decision making in fluency disorders* (3rd ed.). Clifton Park, NY: Delmar.
- Marshall, J., Ralph, S., & Palmer, S. (2002). 'I wasn't trained to work with them': mainstream teachers' attitudes to children with speech and language difficulties. *International Journal of Inclusive Education, 6*(3), 199-215. doi: 10.1080/13603110110067208

- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An experimental clinical trial of a cognitive-behavior therapy package for chronic stuttering. *Journal of Speech, Language and Hearing Research, 51*, 1451-1464.
- Millard, S. K., Nicholas, A., & Cook, F. M. (2008). Is parent-child interaction therapy effective in reducing stuttering? *Journal of Speech, Language, and Hearing Research, 51*, 636-650.
- Ministry of Education. (2013). Schools directory.
<http://www.educationcounts.govt.nz/directories/list-of-nz-schools>
- Montgomery, C. S. (2006). The treatment of stuttering: From the hub to the spoke. In N. B. Ratner & J. Tetnowski (Eds.), *Current issues in stuttering research and practice* (pp. 159-204). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Mulcahy, K., Hennessey, N., Beilby, J., & Byrnes, M. (2008). Social anxiety and the severity and typography of stuttering in adolescents. *Journal of Fluency Disorders, 33*(4), 306-319.
- Newbury, D. F., & Monaco, A. P. (2010). Genetic advances in the study of speech and language disorders. *Neuron, 68*(2), 309-320.
- Nippold, M. A., Schwarz, I. E., & Jescheniak, J. D. (1991). Narrative ability in school-age stuttering boys: A preliminary investigation. *Journal of Fluency Disorders, 16*, 289-308.

- Ntourou, K., Conture, E. G., & Lipsey, M. W. (2011). Language abilities of children who stutter: A meta-analytical review. *American Journal of Speech-Language Pathology, 20*, 163-179.
- Olander, L., Smith, A., & Zelaznik, H. N. (2010). Evidence that a motor timing deficit is a factor in the development of stuttering. *Journal of Speech, Language, and Hearing Research, 53*, 876-886.
- Onslow, M. (2004). Treatment of stuttering in preschool children. *Behaviour Change, 21*(4), 201-214.
- Panico, J., Daniels, D. E., & Claflin, M. S. (2011). Working in the classroom with young children who stutter. *Young Children, 91-95*.
- Ramig, P. R. (1993). High reported spontaneous stuttering recovery rates: Fact or fiction? *Language, Speech, and Hearing Services in Schools, 24*, 156-160.
- Ramig, P. R., & Dodge, D. M. (2010). *The child and adolescent stuttering treatment and activity resource guide* (2nd ed.). Clifton Park, NY: Delmar Cengage Learning.
- Reilly, S., Onslow, M., Packman, A., Wake, M., Bavin, E. L., Prior, M., . . . Ukoumunne, O. C. (2009). Predicting stuttering onset by the age of 3 years: A prospective, community cohort study. *Pediatrics, 123*(1), 270-277.
- Riaz, N., Steinberg, S., Ahmad, J., Pluzhnikov, A., Riazuddin, S., Cox, N. J., & Drayna, D. (2005). Genomewide significant linkage to stuttering on chromosome 12. *American Journal of Human Genetics, 76*, 647-651.
- Schneider, D. J. (2004). *The psychology of stereotyping*. New York: Guilford Press.

- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*, 797-811.
- Stein, M. B., Baird, A., & Walker, J. R. (1996). Social phobia in adults with stuttering. *The American Journal of Psychiatry, 153*(2), 278-280.
- Taylor, S. E. (1982). The availability bias in social perception and interaction. In D. Kahneman, P. Slovic & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 190-200). Cambridge, NY: Cambridge University Press.
- Thatcher, K. L., Fletcher, K., & Decker, B. (2008). Communication disorders in the school: Perspectives on academic and social success an introduction. *Psychology in the Schools, 45*(7), 579-581.
- Trajkovski, N., Andrews, C., O'Brian, S., Onslow, M., & Packman, A. (2006). Treating stuttering in a preschool child with syllable timed speech: A case report. *Behaviour Change, 23*(4), 270-277.
- Turnbull, J. (2006). Promoting greater understanding in peers of children who stammer. *Emotional and Behavioural Difficulties, 11*(4), 237-247.
- van Kraayenoord, C. (2011). Movies and disability: Positive impact or harm? *International Journal of Disability, Development and Education, 58*(2), 103-106.
- Williams, M. E. (Ed.). (2012). *Speech disorders*. Detroit: Gale Cengage Learning.
- Wingate, M. E. (2002). *Foundations of stuttering*. San Diego: Academic Press.

- Woods, C. L., & Williams, D. E. (1976). Traits attributed to stuttering and normally fluent males. *Journal of Speech, Language and Hearing Research, 19*(2), 267.
- Wu, J. C., Maguire, G., Riley, G., Lee, A., Keator, D., Tang, C., . . . Najafi, A. (1997). Increased dopamine activity associated with stuttering. *NeuroReport, 8*, 767-770.
- Yeakle, M. K., & Cooper, E. B. (1986). Teacher perceptions of stuttering. *Journal of Fluency Disorders, 11*, 345-359.
- Yovetich, W. S., Leschild, A. W., & Flicht, J. (2000). Self-esteem of school-age children who stutter. *Journal of Fluency Disorders, 25*, 143-153.

Appendix A
First recruitment email

Subject: Invitation to participate in research

Dear _____,

My name is Jamie Nicholls, and I am a Graduate Student at Massey University, currently working towards a Master's degree in Educational Psychology (MEdPsych). One of the requirements to attain the qualification is the completion of a thesis.

The subject of my thesis is teacher's perceptions of stuttering. The goal of my research thesis is to find out about perceptions teachers have of children who stutter (CWS). Attached is an information sheet which explains this project in more detail.

The purpose of this email is to ask your permission to involve the teachers at _____. The teachers will be asked to complete an online survey about their perceptions of CWS. If you consent to this request, I would then send you another email with a link to the survey and ask that you forward it on to all your teaching staff. I would appreciate it if you would consider and reply to this request before June 28th 2013, as the survey will only be available for a limited time.

Participation in this study will further our understanding of how teachers perceive CWS, and will contribute to developing our potential with inclusive education. Please do not hesitate to contact me if you have any questions or concerns regarding this research project.

Phone: [REDACTED]

Mobile phone: [REDACTED]

Email: [REDACTED]

Kind regards,

Jamie Nicholls

Educational Psychology
Master's student
Massey University

Appendix B
Information sheet



INFORMATION SHEET

Teacher Perceptions of Stuttering and the Stuttering Stereotype

Introduction

Hi, my name is Jamie Nicholls, and I am a Graduate Student working towards a Masters degree in Educational Psychology (MEdPsych) through Massey University. The current research project is to go toward my thesis.

Project Description and Invitation

- The current research will investigate the attitudes and perceptions teachers have of children who stutter (CWS). The achievement of CWS will not be assessed, but rather the attitudes of teachers regarding achievements of CWS.
- You are invited to participate in an online survey, and you are under no obligation to accept this invitation. Your perceptions of CWS and the stuttering stereotype will be explored, whether you have taught any CWS or not.

Participant Identification and Recruitment

Some details regarding the participant selection process and recruitment include:

- The participants in this study will be recruited via an email invitation to an online survey.
- All responses will be kept confidential, as well as personal or school information.
- There will be no compensation, payment or reimbursement for participation in the study.

Project Procedures

Details of the data collection and procedures include:

- The participants involved in the study will take part in an online survey on [surveymonkey.com](https://www.surveymonkey.com). The survey will consist of three parts:
 - 11 demographic questions

- A semantic differential questionnaire, consisting of 15 pairs of bipolar adjectives with a seven-point rating scale.
- Questions exploring perceptions of CWS, consisting of 32 statements with a five-point scale.
- From start to finish, the survey is expected to take approximately 10 minutes.
- At the conclusion of the survey, participants may volunteer for a follow-up interview. Perceptions of stuttering and the stuttering stereotype will be further discussed via the interview. Interviews will take place either face-to-face or over the phone, and at a mutually convenient time.
 - Should you wish to volunteer for an interview, please contact the researcher via the details at the end of this document, upon completion of the online survey.

Data Management

The data collected via the survey will be kept confidential. Upon completion of the project, the results will be published in the form of a thesis, and no identifying information will be included.

Participant's Rights

You are under no obligation to accept this invitation. Acceptance of the invitation and completion of the survey implies that consent has been granted. If you decide to participate, you have the right to ask questions and for clarification before proceeding with the survey.

Project Contacts

Please do not hesitate to contact me with any questions, concerns or comments before, during or after the survey and interview process:

Jamie Nicholls

Phone: [REDACTED]

Mobile phone: [REDACTED]

Email: [REDACTED]

You are also welcome to contact either of my supervisors:

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher, please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, email: humanethics@massey.ac.nz

Appendix C
Second recruitment email

Subject: Invitation to participate in research

To the principal,

My name is Jamie Nicholls, and I am a Graduate Student at Massey University, currently working towards a Master's degree in Educational Psychology (MEdPsych). One of the requirements to attain the qualification is the completion of a thesis.

The subject of my thesis is teacher's perceptions of stuttering. The goal of my research thesis is to find out about perceptions teachers have of children who stutter (CWS). Attached is an information sheet which explains this project in more detail.

The purpose of this email is to ask your permission to extend an invitation to the teachers at your school to be involved. I appreciate that this is an especially busy time of the year for many teachers, and I understand if you are hesitant to pass this email on. However, if you consent to this request, please forward this email on to all of your teaching staff, whether they have ever taught CWS or not. The teachers will be asked to complete a brief online survey about their perceptions of CWS. This is the link to begin the survey: <https://www.surveymonkey.com/s/YCQDF72>

Participation in this study will further our understanding of how teachers perceive CWS, and will contribute to developing our potential with inclusive education. Please do not hesitate to contact me if you have any questions or concerns regarding this research project.

Phone: [REDACTED]

Mobile phone: [REDACTED]

Email: [REDACTED]

Kind regards,

Jamie Nicholls

Educational Psychology
Master's student
Massey University

Appendix D
Demographic Questionnaire

First we would like to ask some demographic questions to ensure we get a good range of respondents.

1. Age

- Under 20
- 20 - 29
- 30 - 39
- 40 - 49
- 50 - 59
- 60 - 69
- 70+

2. Gender

- Female
- Male

3. Which ethnic group do you most identify with?

- New Zealand European
- Maori
- Pasifika
- Asian
- European
- Other

4. How many years have you been working in education?

5. Currently, which school year do you primarily teach?

- Years 1- 2
- Years 3 - 4
- Years 5 - 6
- Years 7 - 9

Years 10 - 13

Other (please specify)

6. Do you stutter? (Yes/No)
7. Do you know of someone who stutters? (Yes/No)
8. Did any of your teacher training deal with disorders of speech? (Yes/No)
9. Have you done any professional reading or research regarding stuttering? (Yes/No)
10. How many children who stutter have you taught?
- 0
- 1 - 3
- 4 - 6
- 7+
11. Do you currently have a student in your class who stutters? (Yes/No)

Appendix E
Semantic Differential Adjective Pairs

Sincere - Insincere

Trustworthy - Untrustworthy

Indecisive - Decisive

Physically normal - Physically abnormal

Unreliable - Reliable

Poor sense of humour - Good sense of humour

Unintelligent - Intelligent

Friendly - Aggressive

Likeable - Unlikeable

Self-assured - Self-conscious

Extroverted - Introverted

Careless - Perfectionist

Insensitive - Sensitive

Flexible - Inflexible

Anxious - Composed

Appendix F

Instructions for Semantic Differential component of the survey, and sample question
with 7-point Likert scale

Below you will see several pairs of adjectives at either end of seven-point rating scales.
For each pair, please indicate the position on the scale which, in your opinion, most
accurately describes a typical child who stutters.

Sample Semantic Differential Adjective Pair with Likert Scale

a) Sincere Insincere



Appendix G
List of Attitudinal Statements

1. A teacher should excuse children who stutter (CWS) from oral presentations or group discussions.
2. It is best for a teacher to ignore the dysfluencies of CWS.
3. It is helpful to CWS for their teacher to complete words on which they experience severe dysfluency.
4. Stuttering can never be completely cured.
5. It is a good policy for teachers to make CWS repeat stuttered words until they can speak them fluently.
6. CWS should be made aware that they are different from other children.
7. Consistently applied, interruptions and commands not to stutter are useful techniques in increasing fluency.
8. CWS are more fluent when teachers insist they relax.
9. Teachers need to exercise extra patience when disciplining CWS.
10. It is important for teachers to be good listeners when dealing with CWS.
11. Teachers have relatively little influence on the attitudes CWS have to stuttering; children develop their own attitudes independently.
12. CWS will probably make a better adjustment to their problem if they are encouraged to openly discuss their feelings about stuttering.
13. It is natural for teachers to feel embarrassment when speaking to a CWS.
14. It is a good policy for teachers to suggest that CWS avoid certain difficult speaking situations.
15. It is helpful to encourage CWS to speak rapidly so people will notice the stuttering less.
16. Punishing stuttering behaviour will increase fluent speech.
17. In general, CWS are as polite socially as children who do not stutter (CWNS).
18. CWS cannot be expected to perform as well academically as CWNS.
19. There are various degrees of stuttering severity.
20. There is no relationship between fear and stuttering.

21. In general, CWS can be considered as being psychologically different from CWNS.
22. Many children stutter as a way to get attention.
23. Punishment of CWS could create a worsening of their speech problem.
24. Teachers should caution CWS to think before they speak.
25. Teachers have little influence on the development of stuttering, since stuttering is probably predisposed before or at birth.
26. Teachers should advise CWS to take a deep breath before speaking.
27. It is helpful for CWS to be educated on the facts of stuttering.
28. Teachers are important influences in the overall process of helping CWS adjust to their speech difficulties.
29. In general, it is not as important to encourage CWS to pursue higher education, compared to CWNS.
30. CWS are generally not as responsible as CWNS.
31. Stuttering may be viewed as a preliminary sign of a character weakness.
32. Allowances should be made when evaluating the academic performance of a stutterer.

Appendix H

Instructions for Attitudinal Statement component of the survey, and sample question with 5-point Likert Scale

The final part of this survey consists of a series of statements regarding children who stutter. Please read each statement carefully and then indicate the degree to which you agree with each statement on the scale.

	Strongly agree	Moderately agree	Undecided	Moderately disagree	Strongly disagree
A teacher should excuse children who stutter (CWS) from oral presentations or group discussions.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix I
Semi-structured Interview Schedule

Thanks for agreeing to be interviewed. Please answer the questions honestly, and feel free to ask any clarifying questions. Some of the questions ask for your personal perspective, while others ask for your opinion of what other teachers may think.

1. Tell me about the kids you teach.
 - a. *Discuss teaching experience; teaching CWS*

2. Let's talk about your perceptions of stuttering.
 - a. What do you think causes stuttering?
 - b. What makes stuttering worse?
 - c. What makes a CWS speak more fluently?

3. Tell me about CWS and school
 - a. *Discuss what they do well and what they struggle with at school*
 - i. *Discuss whether CWS miss opportunities at school*
 - b. *Discuss teaching CWS*
 - i. *Whether concessions should be made for certain verbal tasks*
 - ii. *Discuss higher education*

4. Let's talk about teacher training.
 - a. What training did you get about working with children with disabilities?
 - i. *Explore whether communication disabilities were included, and stuttering specifically*
 - b. To what degree do you think most teachers understand the etiology of stuttering?
 - i. *Explore understanding of the nature of stuttering, including prevalence, overt & covert symptoms, prognosis, variation*
 - c. How do you think most teachers treat a CWS compared to a CWNS?
Explore differences, if any.
 - i. *Explore perceptions of intelligence & social capability of CWS*
 - d. Do you think many teachers know how to handle a stuttering child in their classroom?
 - e. How beneficial would specific training in how to deal with CWS be?

5. Please describe a typical CWS
 - a. *And then, if not already covered...in class, in the playground, at home, socially*

(this one is for Interviewee 1 only)

6. You mentioned you had a student in a performing arts class. Tell me about him.
 - a. [he could speak and open a show in perfect iambic pentameter] *Explore*.
 - b. [his mother accused the teacher of “curing his stutter by expecting great things of him”] *Explore*.
 - c. Have you taught any other CWS? Tell me about them.
 - d. Do you know any other PWS? Tell me about them.

(this one is for Interviewee 2 only)

7. You are the [REDACTED] at a large secondary school. Have you encountered many CWS?
 - a. What programmes/support does your school have in place for CWS?