THE LIDCOMBE PROGRAM AS AN EARLY STUTTERING INTERVENTION IN MALAYSIA

Etain Vong

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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September 2011
STATEMENT OF AUTHORSHIP

I, Etain Vong, hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University or any other educational institution, except where due acknowledgment is made in the thesis. Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during candidature is fully acknowledged.

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STATEMENT OF COMPLETION

I, Linda Wilson, hereby certify that Etain Vong’s thesis titled *The Lidcombe Program as an Early Stuttering Intervention in Malaysia* is in a form that is acceptable for the degree of Doctor of Philosophy.

Dr. Linda Wilson:  
Date:
ABSTRACT

Early stuttering intervention is an area that is currently underdeveloped in Malaysia. Stuttering treatment is often more assertion-based than evidence-based. As such, introducing an evidence-based early stuttering intervention is an important milestone for Malaysian preschoolers who stutter.

This thesis investigates the introduction in Malaysia of an early stuttering intervention known as the Lidcombe Program. Chapter 1 provides an overview of stuttering, particularly in reference to early stuttering. Chapter 2 presents a review about natural recovery and its implications for the timing of early intervention, both of which are issues that are frequently associated with early stuttering. Chapter 3 provides a review of research evidence of three current early stuttering interventions. The Lidcombe Program was established as the intervention that provides the best available evidence of efficacy and hence, was chosen to be trialed in Malaysia. It is a behavioural early stuttering intervention that was developed in Australia. It involves praising and acknowledging stutter-free speech and acknowledging stuttered speech. Parents are the main therapy agents. Although the Lidcombe Program has the best available evidence, it was hypothesized that its implementation might not be congruent with Malaysian families due to the potential differences between Australian and Malaysian parenting practices, particularly in the component that involves the practice of praise. The practice of praise was hypothesized as an uncommon practice for Malaysian parents. Thus, this research program was developed to investigate a number of research questions.

Study 1 was undertaken to describe Malaysian parents’ use of positive reinforcement, particularly in the practice of praise, through video observations of six parent-child dyads in Malaysia. Results presented in Chapter 4 suggest that, although the practice of praise was relatively infrequent, Malaysian parents do praise their preschool children.

Study 2 investigated Malaysian parents’ responses and reactions to the approach used in the Lidcombe Program using a focus group design. Two focus groups were conducted. Findings presented in Chapter 5 complement results from Study 1 in that,
although the practice of praise was relatively uncommon, parents were willing to carry out the practice under professional advice if it was beneficial for children who stutter.

Results and findings from the first two studies gave the candidate information about the issues and considerations for implementation of the Lidcombe Program with Malaysian families. These adaptations are proposed in Chapter 6. Considerations for treating bilingual children who stutter are also presented in this chapter.

Study 3 which is a Phase I clinical trial reported the outcomes of implementation of the Lidcombe Program with four case studies in Malaysia. This study is described in Chapter 7. All the components of the Lidcombe Program were implemented. Some adaptations that were proposed in Chapter 6 were applied when necessary for facilitating implementation. However, it was concluded that these “adaptations” were more akin to “strategies,” consistent with the problem solving component inherent in the Lidcombe Program. Two participants who were bilingual, achieved near-zero levels of stuttering at 12 months posttreatment. Low levels of stuttering were also present in their untreated languages. One participant withdrew due to reasons not connected with the research or treatment. One participant completed Stage 1 but had some degree of relapse in Stage 2. Implications of this study are discussed.

Finally, Chapter 8 draws together the results and implications from the three studies. Recommendations for future research are made.
PREFACE

The study conducted in Chapter 4 was designed and conducted by the candidate with guidance from Linda Wilson, Michelle Lincoln, and Lindy McAllister. The candidate enlisted the assistance of first year speech pathology students of the National University of Malaysia in gathering data, with the approval of the Head of Audiology and Speech Sciences Department, National University of Malaysia. The candidate analysed the data and Susheel Kaur and Zi Wei assisted with the interobserver agreement. The candidate prepared the paper for publication.

The research in Chapter 5 was also designed and conducted by the candidate with guidance from Linda Wilson, Michelle Lincoln, and Lindy McAllister. The candidate obtained permission from the National University of Malaysia in using its premises to collect the data. Data analysis was done by the candidate.

The research in Chapter 7 was also designed and conducted by the candidate with guidance from Linda Wilson and Michelle Lincoln. The candidate had obtained permission from Mok Yong Yaw, the proprietor of Gnosis Professional Hearing Services, to use its premises to collect the data. Treatment was administered by the candidate. Fan Say Ken assisted in the measurement speech samples and Magdalene Ong assisted with interobserver measurement.
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To all my CSU colleagues: Lisa, Jane, Michelle, Anna, and Sandra. Thank you for the times we have shared and for the warmth and kindness all of you have shown to me during my years in CSU (off and on campus!). Especially to Lisa, thank you for your generosity and kindness to me and my family during my final leg of the PhD race; we can never thank you enough!

To all my research participants and their families; thank you for the commitment in participating in my study. To Mok, thank you for your generosity and kindness in allowing me the use of your clinic room for as long as I like with my participants.

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To all of these people and people I may have accidentally left out, I thank God for having placed all of these people in my life; always at the right place and at the right time!
PRESENTATION/S AND PUBLICATIONS ARISING FROM THIS THESIS

Presentation/s


Journal Articles


## ABBREVIATIONS

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<th>Acronym</th>
<th>Meaning</th>
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<tr>
<td>SLP</td>
<td>speech-language pathologist</td>
</tr>
<tr>
<td>DCM</td>
<td>Demands and Capacities Model</td>
</tr>
<tr>
<td>PCIT</td>
<td>Parent-Child Interaction Therapy</td>
</tr>
<tr>
<td>LP</td>
<td>Lidcombe Program</td>
</tr>
<tr>
<td>OD</td>
<td>Other Dysfluencies</td>
</tr>
<tr>
<td>SLD</td>
<td>Stuttering-Like Dysfluencies</td>
</tr>
<tr>
<td>%SS</td>
<td>percentage syllables stuttered</td>
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<tr>
<td>SW/M</td>
<td>stuttered words per minute</td>
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<tr>
<td>VCs</td>
<td>verbal contingencies</td>
</tr>
<tr>
<td>SR</td>
<td>severity rating</td>
</tr>
<tr>
<td>+PC</td>
<td>positive parental contingencies</td>
</tr>
<tr>
<td>-PC</td>
<td>negative parental contingencies</td>
</tr>
<tr>
<td>NR</td>
<td>neutral response</td>
</tr>
<tr>
<td>AE</td>
<td>Acknowledgment or Encouragement</td>
</tr>
<tr>
<td>P</td>
<td>Praise</td>
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<tr>
<td>I</td>
<td>Incentive</td>
</tr>
<tr>
<td>RSE</td>
<td>Request for Self-Evaluation</td>
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<tr>
<td>PG</td>
<td>Positive Gesture</td>
</tr>
<tr>
<td>CAQ</td>
<td>Critical Acknowledgment/ Question</td>
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<td>Pn</td>
<td>Persuasion</td>
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CHAPTER 1
OVERVIEW OF STUTTERING

Introduction

One of the many wonderful things in life that many of us take for granted is the ability to speak effortlessly without much thought of how fluent we are or how we sound. Yet, at least 1% of the world’s population is believed to have the speech disorder known as stuttering. It is a speech disorder that has an adverse effect on communication (e.g., Kamhi, 2003) and can be a handicap, to greater or lesser degrees, in many daily life activities such as work, school, and social interactions (Conture, 1996). Young children who stutter have also been shown to have negative attitudes towards speech, at ages as young as 6 years, in comparison to nonstuttering children (De Nil & Brutten, 1991; Vanryckeghem & Brutten, 1997). Packman, Onslow and Attanasio (2003) reviewed previous studies of the psychological effects of stuttering on children, reporting that some preschool children who stuttered were aware of their stuttering, reacted negatively to it, and were distressed. In addition, a recent study by Langevin, Packman, and Onslow (2009), indicated that stuttering in preschoolers aged 3 to 4 years has the potential to elicit negative peer responses. Peers were found to interrupt, mock, or ignore the preschool child who stuttered. Other social interactions in school that involved play, conflict resolution, problem-solving discussions, and explaining oneself were also negatively affected.

It cannot be denied that stuttering can have a negative impact on the lives of people who stutter, from as early as the preschool years to the school years and into adulthood. The potential effects of stuttering if left untreated highlight the need to treat within the early years after onset.

This brings us to the core of this thesis: the introduction of an early stuttering intervention, known as the Lidcombe Program, in Malaysia, where stuttering treatment is not highly prioritized. This could be due to the fact that speech-language
pathology itself is comparatively a small profession compared to its population size. Clinical and research work has mostly focused on other areas of communication such as language and swallowing disorders. Although clinicians do work with people who stutter, stuttering treatment is often more assertion-based than evidence-based. This is because evidence for efficacy of stuttering treatments has mainly been generated in other countries where the cultures may be different. There is as yet no evidence to support the use of any particular stuttering treatments for the Malaysian population. The studies in this thesis contain the first evidence regarding the efficacy of an early intervention for stuttering, the Lidcombe Program, with Malaysian preschoolers.

As this research’s main focus is on early stuttering, or specifically, stuttering in preschoolers aged between 2 to 6 years, most descriptions or explanations will be linked or associated with this age group. The following sections briefly present an overview of what is known about stuttering in terms of its nature, onset, prevalence, and incidence. Theoretical views of stuttering are also briefly described with a concluding view of how current research in genetics and brain imaging has played a role in facilitating our understanding of stuttering.

### Description of Stuttering

Stuttering is a speech disorder that involves speech disruptions characterized by repetitions, prolongations, and blocks of speech elements (Guitar, 2006; Onslow, 1996; Wingate, 1964) and it is sometimes accompanied by secondary behaviours such as eye blinking and facial movements (Onslow, 1996). Although researchers and clinicians do not universally agree on its definition and debate is ongoing, stuttering is nevertheless a speech disorder that is identifiable behaviourally and/or perceptually.

Early stuttering refers to stuttering that begins in the preschool years, most commonly when a child is 2 or 3 years old and has stuttered for 1 to 3 years (Onslow, 1996). Some clinicians use the term “incipient stuttering” to refer to early stuttering (Moore & Perkins, 1990; Yairi, 1997). Children who stutter present significantly higher levels of dysfluencies compared to children who do not, with part-word repetitions and
prolongations being the most common or frequent behaviours (see Ambrose & Yairi, 1999; Armson, Jenson, Gallant, Kalinowski, & Fee, 1997; Onslow, 1996; Ryan, 2001; Yairi & Ambrose, 1992). In general, clinicians are able to identify or diagnose early stuttering in spite of the fact that some characteristics of early stuttering could overlap with normal dysfluencies in young children.

**Onset of Stuttering**

Onset of stuttering has been reported to be either sudden or gradual (Bloodstein & Bernstein Ratner, 2008). Information about onset of stuttering usually comes from parents’ recollections of events that happened in the past (Bloodstein, 1995; Bloodstein & Bernstein Ratner, 2008; Guitar, 2006). These, therefore, can be inaccurate. Despite this, it is generally agreed that stuttering typically begins during the preschool years (2 to 5 years of age).

Bloodstein and Bernstein Ratner (2008) summarized 16 studies from 1935 to 2005 regarding age at reported onset of stuttering, with the earliest onset at 18 months and the latest onset varying from 7 to 13 years of age. In a report by Starkweather and Givens-Ackerman (1997) of 7 studies conducted from 1936 to 1981, the earliest onset of stuttering in each study was less than 2 years and the latest onset ranged from 11½ years to 15 years. According to Bloodstein and Bernstein Ratner (2008), the average recollected age at onset is distinctly closer to the earliest than to the latest age. Yairi and Ambrose (1992) reported that the greatest risk for the onset of stuttering is for children under 36 months of age, with a mean age of onset at 32.76 months. Månsson (2000) reported a similar figure in his study, with 33 months for the mean age of onset.

**Prevalence and Incidence**

Prevalence is defined as the frequency with which a condition may be observed in a population at a given period of time, while incidence reflects the proportion of the
Bloodstein and Bernstein Ratner (2008) reviewed and summarized 44 studies that reported prevalence of stuttering among school children. These studies were carried out over a span of more than a century in the United States, Europe, Africa, Australia, and the West Indies. Children from these studies ranged from kindergarten to Grade 12. Eighteen studies were conducted among American school children, reporting a prevalence of stuttering of generally less than 1%. The other studies reported approximately 1% prevalence of stuttering among school children. According to the authors, the general estimate of prevalence of stuttering is established at about 1 percent or less.

Studies of prevalence in the preschool population, specifically in the age range of 2 to 6 years, remain scarce. Craig, Hancock, Tran, Craig, and Peters (2002) conducted a randomized and stratified investigation into the epidemiology of stuttering in the community across the entire life span in New South Wales, Australia. Prevalence in the age groups of 2 to 5 years old and 6 to 10 years old was found to be 1.4% and 1.44% respectively. Prevalence in other older age groups was found to be less than 0.8%. Prevalence was 0.53% in the age group of 11 to 20 years old, 0.78% in the 21 to 50 years group, and 0.37% in those 51 years and older.

In another study in Belgium, stuttering prevalence in regular and special schools was investigated through questionnaires completed by school teachers (Van Borsel et al., 2006). In the regular schools, the teachers answered questions on children aged 6 to 20 years. It was found that the age group 6 to 10 years old had a prevalence of 0.78%, compared to 0.53% and 0.27% in the age groups of 11 to 15 and 16 to 20 years old respectively. However, the authors acknowledged that underreporting of stuttering was likely to occur. According to the authors, this was because it was possible that some pupils who might have “interiorized” stuttering were missed. This most likely referred to pupils who avoided certain situations or displayed silent blocks that could easily be missed. Overreporting could also have occurred as the teachers were provided with no training to identify stuttering. They were also not given a definition of stuttering. Thus they could have identified normal dysfluency as stuttering.
In a similar study in 36 primary schools in Sydney, Australia, McKinnon, McLeod, and Reilly (2007) investigated prevalence of stuttering, voice, and speech-sound disorders in school students ranging from kindergarten (the first year of formal schooling) to Grade 6. It was reported that prevalence of stuttering in kindergarten and Grade 1 was 0.56% and 0.64% respectively. Prevalence in Grade 2, 3, 4, 5, and 6 was 0.33%, 0.25%, 0.35%, 0.07%, and 0% respectively. The authors acknowledged that identification of stuttering included only those children who stuttered while at school, excluding parental report for identification. Thus, it was possible that the prevalence of stuttering may have been underidentified. However, unlike the study by Van Borsel et al. (2006), the teachers who identified the disorders investigated were given a descriptor booklet on each disorder and also trained on the purposes and methods of identification. Therefore, errors of overreporting cases would have been less likely to occur.

There are as yet no published prevalence data for the Malaysian population. Nevertheless, there is no reason to assume that prevalence is different from the prevalence rates in other populations. From these studies, it can be assumed that prevalence data for preschoolers are generally higher compared to older age groups. This could perhaps be attributed to natural recovery which will be discussed in more detail in Chapter 2.

Studies on incidence of stuttering are less common than prevalence studies. Bloodstein and Bernstein Ratner (2008) reviewed 16 studies that reported lifetime incidence ranging from 0.7% to 15.4%. These studies ranged from the 1920s until the early 21st century. Almost half of these studies were conducted in various places in the United States with the remaining from the United Kingdom, Europe, and Australia. Participants from these represented a wide range of age: children followed from birth to a certain age, to adults in their forties. Variation in incidence figures was most likely due to the difference in methodology or sampling error. According to the authors, there is disparity among some of the reports although most reports are comparable and in fair agreement that incidence clustered closely at about 5 percent, well above the prevalence of stuttering.
In the preschool population, Månsson (2000) reported an estimated incidence of 5.19% for the entire population of children who were born within a 2-year span. These children were 3-year olds at the beginning of the survey and were followed for up to 2 years. Stringent screening methods to identify stuttering were employed although the author acknowledged that tape recorded speech samples were not obtained for further verification and quantification of stuttering. The author also acknowledged that additional new cases of stuttering could have gone undetected in the later follow-ups, as identification of stuttering was less stringent compared to the one-to-one stringent screening at the initial data collection point. Thus, an underestimation is a possibility. This finding of 5.19% could also be overestimated due to design limitations or may truly reflect a high risk in an isolated population (Craig et al., 2002) that was reported to be homogenous (Månsson, 2000).

Craig et al. (2002), in an epidemiology study of stuttering in the community across the entire life span, reported an estimated rate of incidence for the age ranges of 2 to 5 year olds and 6 to 10 year olds at 2.8% and 3.4% respectively. Estimated rate of incidence in other older age groups was 2.2% or less. This study was conducted within an ethnically heterogeneous population in Australia, strengthening its applicability to other populations that are also ethnically heterogeneous.

In a recent prospective community cohort study by Reilly, Onslow, Packman, Wake, Bavin, Prior et al. (2009), 1619 2-year-old Australian children were recruited as participants to document the onset of stuttering. These children were originally participants of a larger study of early language development and were recruited at the age of 8 months. At the age of 2 years, 57 of the original 1911 participants of the language study were unavailable (withdrawn, lost contact, or moved away) and parents of 235 opted not to participate in the stuttering study, leaving 1619 (85%) from the original sample. By 3 years of age, the presence of stuttering was confirmed in 137 children (8.5%) out of the 1619, by a trained research assistant who was also a speech-language pathologist (SLP). There were 21 “borderline” children in whom stuttering reports were ambiguous, and these were classified as nonstuttering for the main analyses. Although the cumulative incidence found was almost twice the percentage previously reported in other
studies, the high rate was claimed by the authors to be accurate and not due to overidentification. This was because stuttering was claimed to be verified by experts using strict criteria and the authors were confident that the majority of children in the population who started to stutter before age 3 were identified.

Like prevalence, there are also no published incidence data for the Malaysian population. From the studies described above, it can be concluded that incidence of stuttering is higher than prevalence, although the range of estimates varied between studies. More research is needed to determine the incidence of stuttering using prospective designs and a randomly selected heterogeneous population, such as the Malaysian population.

Prevalence and incidence rates are important in the planning and management of clinical caseloads. For example, an underestimation of prevalence rates in children would lead to an insufficient workforce of SLPs to provide treatment leading to long wait times (Craig et al., 2002). In the next section, the candidate will discuss the current theoretical views on the nature and cause of stuttering, and the role of genetics and brain imaging studies in stuttering. These views are important because some stuttering treatments are based on specific theories, although no theory of causality has yet been proven true.

**Theoretical Views of Stuttering**

Researchers and clinicians continue to ponder and postulate about the cause and nature of stuttering. Information about the cause and nature of stuttering can inform the development of stuttering treatments. In Chapter 3, reviews of some popular treatment options for preschoolers will be discussed. In order to provide some context for the treatment review, the current section aims to present background information on the cause and nature of stuttering. Many theories, hypotheses, and models have emerged over the decades, each debatable and none yet universally accepted as “the one true cause.” The terms *theory*, *hypothesis*, and *model* are sometimes used interchangeably. To avoid
confusion, the term theory will be used in general unless specifically stated by an author that it is a hypothesis or a model.

Theories of stuttering have been reviewed and classified differently by researchers in terms of their understanding of stuttering. Some have been disproved or lost their appeal over the years as newer theories have been developed. Others have been refined further to fit in with current findings. According to Packman and Attanasio (2004), a causal theory should be able to explain the five phenomena of stuttering: (a) the topography of the speech behavior of stuttering, (b) onset and development, (c) natural recovery, (d) genetics, and (e) variability. In this thesis, past theories that have lost their standing or have not been discussed over the past two decades will not be reviewed (for a review, see Bloodstein & Bernstein Ratner, 2008; Packman & Attanasio, 2004). It is also out of the scope of this thesis to review each theory’s explanatory power in describing each stuttering phenomenon (for a review, see Packman & Attanasio, 2004). This thesis will instead present a general summary of the current theories of the cause and nature of stuttering using Packman and Attanasio’s (2004) broad classification as a guide.

**Explanatory Theories of the Nature and Cause of Stuttering**

*Speech Motor Control*

Speech motor control refers to the systems and strategies that regulate speech production (Kent, 2000). One model of stuttering that incorporates speech motor control is the *Interhemispheric Interference Model* (see Webster, 1985, 1986, 1998). According to this model, there are two factors which together are necessary and sufficient for stuttering to occur. These factors are (a) an inefficient supplementary motor area and (b) a labile system of hemispheric activation. According to this model, the left supplementary motor area is fragile and susceptible to interference from other ongoing neural activities, particularly overactivation of the right hemisphere. According to Webster (1998), “a lack of normal gating of information flow between hemispheres” (p. 223) would cause an overflow of activity from the right to the left hemisphere, producing interference in an area suspected to be the supplementary motor area, resulting in dysfluency. This
dysfluency in turn leads to negative emotional reactions which contribute to greater activity in the right hemisphere, which continues to interfere with the left hemisphere, resulting in dysfluency. Although this model is not the proven cause of stuttering, research has provided some empirical evidence to support its theory (see Bloodstein & Bernstein Ratner, 2008; Forster & Webster, 2001; Guitar, 2006; Packman & Attanasio, 2004; Webster, 1998).

**Systems Control Modelling**

*Systems control modelling* uses the concept of internal models or frameworks, which involve several systems interacting with each other in a feedback system, to explain the behaviours of stuttering. *Sensory-motor Modelling Theory* (see Andrews et al., 1983; Neilson & Neilson, 1987, 2000), the *Neuroscience Model* (see Nudelman, Herbrich, Hess, & Hoyt, 1992; Nudelman, Herbrich, Hoyt, & Rosenfeld, 1989) and the *Variability Model (VModel)* (Packman, Code, & Onslow, 2007; Packman & Lincoln, 1996; Packman, Onslow, & Menzies, 2000; Packman, Onslow, Richard, & Van Doorn, 1996) are current theories which incorporate systems control modelling to explain stuttering. Although each theory or model differs in the terms used for explaining stuttering, they all refer to instability in the speech system.

The *Sensory-Motor Modelling Theory* describes a deficit in neural processing that is necessary for stuttering to occur. However, this deficit alone is not sufficient for stuttering to occur. Stuttering occurs when this deficit causes a diminished ability to evaluate the relationship between sensory-to-motor and motor-to-sensory activity during speech production. Although this theory is not testable or falsifiable directly at the empirical level (Packman & Attanasio, 2004), Neilson and colleagues, who developed this theory, presented a computational model of how this theory can explain stuttering (see Neilson & Neilson, 1987, 2000).

The *Neuroscience Model* views stuttering as a momentary instability in a complex multiloop control system. According to this model, “a stuttered event is viewed as consisting of two components: (a) a momentary instability (in the control theory sense) in the speech motor control system and (b) the system’s response (including its corrections)
to this instability” (Nudelman et al., 1992, p. 1883). The speech motor control system is modeled as two nested functional loops: one outer loop and one inner loop. The outer loop is responsible for selection of speech sounds and the inner loop is responsible for programming and monitoring of the speech sounds. Stuttering is said to occur when there is a mismatch between the functioning of both loops. Although this model has logical consistency and is parsimonious in explaining the phenomena of stuttering, it has not generated further research (see Packman, Onslow, & Attanasio, 2004).

The Vmodel proposes an unstable speech system of unknown origin as a sufficient condition for the onset of stuttering and a necessary and sufficient condition for persistent stuttering. The model links variable linguistic stress as a triggering condition for stuttering to occur. According to this model, variation in syllabic stress (changes in emphasis from syllable to syllable during speech) places demand on the unstable speech system, triggering stuttering. This model was developed from attempts to explain findings in children and adults with persistent stuttering who received prolonged speech treatment (e.g., Onslow, Van Doorn, & Newman, 1992; Packman, Onslow, & Van Doorn, 1994). Findings from these studies had inferred that reduction of variation of vowel duration leads to reduction of syllables stress (syllables are more evenly stressed), which reduces motoric demands on the speech system, which decreases stuttering (Packman & Attanasio, 2004). However, these findings do not confirm the model (Packman & Attanasio, 2004) and in a more recent publication (see Packman et al., 2007), the Vmodel was presented as a triggering mechanism for stuttering and not the cause, with the assumption that stuttering is underpinned by an unstable speech system of unknown origin. In this publication, the authors presented evidence from behavioral and brain research to propose the Syllable Initiation theory which states that stuttering occurs due to an unstable speech system that is caused by difficulty in initiating motor plans for syllables. Although there appears to be considerable empirical support presented by the authors, future research is needed to establish this theory as the cause of stuttering.
Theories that incorporate cognitive and linguistic processing refer to the idea that speech involves linguistic and paralinguistic components and any disruption to any of the components will lead to stuttering. There are three theories that explain stuttering from the perspectives of linguistic and cognitive processing. The Neuropsycholinguistic Theory by Perkins and colleagues (see Perkins, Kent, & Curlee, 1991) proposed that there are two neural systems that are responsible for the linguistic and paralinguistic components in speech. These neural systems are the symbol and the signal system. The symbol system is responsible for linguistic processing whereas the signal system is responsible for paralinguistic processing. Paralinguistic system refers to the self-expressive component of a syllable such as pitch, loudness, duration, and quality in which a speaker’s emotion and intent are signaled. Disfluent speech occurs when these neural systems are dyssynchronous with one another. For a disfluency to be referred to as stuttering, the speaker must be under time pressure and relatively unaware of the cause of the dyssynchrony. The speaker needs to experience “loss of control of speech flow” (p. 734). Time pressure is defined as the pressure to begin, continue, or accelerate an utterance. A disfluency is considered nonstuttered but merely normal if the cause of the disruptions is known. This means that the identification of stuttering can only be made by the speaker because only the speaker can confirm the sense of losing control of their speech flow (Packman & Attanasio, 2004). According to Packman and Attanasio (2004), this theory raises some questions: It cannot be proved or disproved directly because it is simply not possible to objectively test whether a person in fact experiences a loss of control when they report that they do.

The second theory that incorporates cognitive and linguistic processing is referred to by the authors as the Covert Repair Hypothesis (see Kolk & Postma, 1997; Postma & Kolk, 1993). The authors proposed that disfluencies are “by-products of covert repairs of internal speech errors” (Postma & Kolk, 1993, p. 477). These self-repairs are internal and automatic within the speaker and consist of error detection, interruption or cut-off, and the correction itself. The type of disfluency manifested would depend on the type of repair that occurred. The difference between normal speakers and people who stutter is
the frequency of error which is greater in people who stutter (Kolk & Postma, 1997). The authors hypothesized that phonological encoding of people who stutter is slower than that of normal speakers which results in more errors in phonetic plans or phonologic encoding. As a consequence, more corrections and repairs are needed by people who stutter compared to normal speakers. Although the hypothesis appears logical in its argument and has been fruitful in generating research and discussion, the authors acknowledged that there are still some aspects of stuttering that the hypothesis does not explain, such as why some people display slower phonological encoding, why this persists in some and not in others, and how stuttering changes from childhood to adult forms (see Kolk & Postma, 1997; Packman & Attanasio, 2004).

The third theory that describes stuttering from the perspectives of linguistic and cognitive processing is the Suprasegmental Sentence Plan Alignment model which is proposed by Karniol (1995). This model suggests that an individual stutters because of an underlying linguistic deficit and a difficulty modulating fundamental voice frequency. According to this model, speakers frequently change their speech plans online during sentence production. These changes are referred to as frame changes. For a frame change to occur, a new suprasegmental pattern must replace the old pattern. Difficulties with aligning old and new suprasegmental plans and in adjusting voice fundamental frequency to accommodate these online changes are necessary for stuttering to occur. Although this model appears logical, it is not testable empirically because it is not apparent how a frame change and a difficulty in modulating fundamental voice frequency can be identified (see Packman & Attanasio, 2004).

**Multifactorial Models**

The Demands and Capacities Model (see Gottwald & Starkweather, 1999; Starkweather & Givens-Ackerman, 1997; Starkweather & Gottwald, 2000; Starkweather, Gottwald, & Halfond, 1990) and the Dynamic Multifactorial Model (see Smith, 1999; Smith & Kelly, 1997) are two examples of models that propose that stuttering occurs due to multiple factors. Other theories propose only one or two factors that cause stuttering. The proponents of the Demands and Capacities Model proposed that stuttering develops
when the demands of the child’s communicative environment exceed the child’s capacities for fluent speech, or when the child lacks the capacities to speak as fluently as the environment demands. The demands may be the speech behaviours of significant people in the child’s life such as a fast parental speech rate, family interaction patterns such as interruptive parents or parental requests for verbal performance, family reactions to stuttering that are negative, and family lifestyle characteristics in which there is a constant rush of activities and high levels of anxiety and tension (Gottwald & Starkweather, 1999). Capacities refer to the child’s skills or abilities in the area of speech motor control, language formulation, social-emotional maturity, and cognitive ability that are needed for fluent speech (Gottwald, 2010). Despite the model’s popularity in the literature, it has come under criticism (see Bernstein Ratner, 2000; Ingham & Cordes, 1997; Packman & Attanasio, 2004; Siegel, 2000; Yaruss, 2000) because of its questionable definitions and clinical measurement of demands and capacities.

The Dynamic Multifactorial Model proposes that “stuttering emerges from the complex, nonlinear interaction of many factors” (Smith & Kelly, 1997, p. 209). No single factor is considered as the one and only cause of stuttering. The factors that interact dynamically with each other to cause stuttering consist of environmental factors and also factors intrinsic to an individual. These intrinsic factors refer to genetic, organismic, emotional, cognitive, and linguistic factors that interact with one another and also could be interacting with environmental factors. The interactions of these factors must then impact speech motor processes directly or indirectly to cause stuttering. Like the Demands and Capacities Model, this model raises lots of questions because it does not explain exactly how and why these factors interact with each other to cause stuttering (see Packman & Attanasio, 2004).

**Anticipatory Struggle**

Over the past few decades, the *Anticipatory Struggle* hypothesis has been viewed and modified in a number of ways to explain stuttering (see Bloodstein, 1995, 1997; Bloodstein & Bernstein Ratner, 2008; Packman & Attanasio, 2004). The basic idea of this hypothesis is that stuttering emerges when an individual believes that speaking is
difficult, and thus, in their anticipation and fear to speak, stuttering emerges. With growing evidence from genetic and brain research, this view has been modified in that incipient and developed stuttering are viewed as two distinct disorders (see Bloodstein, 2001). According to Bloodstein (2001), incipient stuttering which occurs in young children is caused by a genetic predisposition that they eventually outgrow whereas developed stuttering in older children and adults is caused when these young children develop anticipatory struggle reactions as a learned response to the early stuttering. Despite the fact that this hypothesis has continued to exist in the current literature, it has not generated any empirical evidence to support its original or modified versions (see Packman & Attanasio, 2004).

In conclusion, some models have emerging evidence of the nature and cause of stuttering whereas some models are simply not testable and thus, are questionable. In recent years, new technology in the studies of genetics and brain imaging has added to our knowledge of the possible cause and nature of stuttering. In the next section, the role of genetics and brain imaging is further discussed.

The Role of Genetics and Brain Imaging Studies in Stuttering

Current development in the study of genetics suggests that stuttering is a polygenic disorder that is genetically transmitted (Wittke-Thompson et al., 2007) with specific chromosomal (Kang et al., 2010; Raza, Riazuddin, & Drayna, 2010; Suresh et al., 2006). However, findings since the 1980s are inconsistent in terms of how transmission actually occurs (e.g., Ambrose, Yairi, & Cox, 1993; Cox, Kramer, & Kidd, 1984; Cox, Seider, & Kidd, 1984; Felsenfeld et al., 2000; Kidd, 1977, 1980; Wittke-Thompson et al., 2007; Yairi, Ambrose, Paden, & Throneburg, 1996), with suggestions ranging from a single major locus of transmission to a polygenic transmission.

Brain imaging studies have also offered a different perspective on how stuttering can be viewed. These studies have focused on functional (e.g., Braun et al., 1997; De Nil, Knoll, Kapur, & Houle, 2000; De Nil, Knoll, Lafaille, & Houle, 2003; Foundas et al.,
Chapter 1 Overview of Stuttering

2004; Fox et al., 1996; Fox et al., 2000; Ingham et al., 2004; Neumann et al., 2003; Preibisch et al., 2003; Salmelin, Schnitzler, Schmitz, & Freund, 2000; Salmelin et al., 1998) and anatomical differences (e.g., Foundas, Bollich, Corey, Hurley, & Heilman, 2001; Foundas et al., 2004; Sommer, Koch, Paulus, Weiller, & Büchel, 2002) between brain structures of people who stutter and people who do not stutter to facilitate our understanding of the cause of stuttering (Brown, Ingham, Ingham, Laird, & Fox, 2005). Thorough reviews of these studies (see De Nil, 2007; Ingham, 2004) and a meta-analysis of eight functional imaging studies (Brown et al., 2005) have concluded that people who stutter generally showed an increased activation in the right hemisphere, especially in the motor areas, and a decreased activation in auditory areas compared to people who do not stutter. Anatomical differences have also been shown, although these differences were relatively inconsistent compared to the functional differences found. Because all these studies have been conducted in adults, the anatomical differences found could be a result of stuttering and not the cause of stuttering (Packman et al., 2007).

However, a recent brain imaging study of brain anatomy differences in childhood stuttering (Chang, Erikson, Ambrose, Hasegawa-Johnson, & Ludlow, 2008), recruited 22 right-handed boys between 9 and 12 years of age. Eight were children who had persistent stuttering that began when they were 2 to 3 years old, seven were children who had recovered naturally, usually 2 to 3 years postonset, and seven were fluent controls. Findings showed that recovered and persistent children had a reduction of grey matter volume in the speech relevant regions in the left hemisphere compared to controls. Reduced white matter integrity in the left hemisphere was found only in the persistent group. Contrary to findings in adults who stutter (see Foundas et al., 2001; Foundas et al., 2004), no anatomical increases were found in the right hemisphere speech regions in stuttering or recovered children. Chang et al. (2008) supported the earlier inference made by Packman et al. (2007) that the anatomical differences found in adults may be a result of stuttering. The authors concluded that a risk for childhood stuttering was associated with a reduction in left grey matter volume while reduced white matter integrity in the left speech system was associated with persistent stuttering. Nevertheless, it was acknowledged that these results were preliminary because of the small sample sizes and
the fact that the children were studied past the age when stuttering first began. Therefore, differences shown in those who persisted could also be a result of stuttering and not the cause. However, deficits in the development of grey matter volume in the left hemisphere could perhaps shed some light on the cause of stuttering, although more studies are needed to establish this finding.

Despite the current theories about the nature and cause of stuttering that have been described, and recent genetics and brain imaging studies that have provided some possible explanation of why stuttering might occur, the exact cause of stuttering remains a mystery. It could be a genetic disorder in that different combinations of genes cause deficits in the different brain areas or functions that have been postulated in some of the theories, which ultimately manifest in the behaviours we identify as stuttering. Some theories (e.g., the Sensory-Motor Modelling Theory and the Neuropsycholinguistic Theory) have linked genetics to their postulated cause of stuttering (see Packman & Attanasio, 2004). Different combinations of genes could also render a person either more susceptible to having transient or persistent stuttering (see Predictors of Natural Recovery, Chapter 2). The more important issue is how some of these theories or findings have resulted in treatments for stuttering, particularly treatments of early stuttering, which will be the focus of this thesis.

In the following chapter, the issues of natural recovery and timing of intervention will be discussed as these issues are frequently associated with intervention for early stuttering. In Chapter 3, three current and popular treatment approaches for early stuttering; treatments based on the Demands and Capacities Model (DCM), Palin Parent-Child Interaction Therapy (PCIT), and the Lidcombe Program (LP), are explored and where relevant, linked to the theories postulated above. A summary of each treatment’s efficacy as reported in the literature has also been provided, with a view to selecting an efficacious intervention with the best available research evidence for introduction in Malaysia. The LP was identified as the treatment with the best available evidence and thus was selected to be trialed in Malaysia.
Chapter 3 also briefly discusses the area of stuttering in Malaysia from the candidate’s personal experience of working there as an SLP. There has been no research in Malaysia about the efficacy or effectiveness of any particular approach to early stuttering intervention. The LP, an approach developed in Australia, has never been trialed and documented in the Malaysian context. Thus, this chapter also explores the congruence of the LP with the Malaysian context. It was hypothesized that the LP’s core approach using parental verbal contingencies such as praise and acknowledgment might not be congruent with most Malaysian parenting practices. To explore this further, Chapters 4 and 5 describe the first two studies of a research program.

Chapter 4 describes Study 1 of the research program. The purpose of this study was to describe the use of positive reinforcement by a small number of Malaysian parents, with a view to determine whether an adaptation of the LP for Malaysian families is necessary. This was because observations by and the personal experiences of the candidate, suggested that praising children verbally is not common practice among Malaysian parents. Yet, verbal praise is a core component of the LP. Thus, there exists a possibility that the LP might not be entirely suitable for Malaysian families and therefore needs to be adapted. Participants included a random selection of six dyads of parent and child from a stratified sample of 20 Malaysian dyads. Results from this phase provided preliminary information about how the LP could be adapted for Malaysian families. Implications for the LP are further discussed in this chapter.

Chapter 5 describes Study 2 of the research program. The purpose of this study was to describe Malaysian parents’ responses and reactions to the approach used in the LP. This was intended to complement the findings from Study 1 to describe how the LP might be received and accepted by Malaysian parents during implementation and if any adaptations might be needed. A focus group design was chosen for this study.

Results and findings from Study 1 and 2 respectively provided preliminary information about how the LP could be adapted to suit Malaysian families. The proposed adaptations are presented in Chapter 6. The issue of bilingualism and its relation with the implementation of the LP is also explored in this chapter.
Chapter 7 describes the third and last study of this research program: the implementation of the LP in Kuching, the capital city of East Malaysia. The proposed adaptations were incorporated whenever necessary during the standard implementation. Four participants and their families were involved in this Phase I clinical trial. Two cases were followed up for a year and categorized as successful, one case withdrew from treatment and the study, and one case was not considered to be a success. Results are presented and the implications are discussed.

Chapter 8 presents concluding remarks from this research program and the contributions it has made. Implications for future research are also discussed.
CHAPTER 2
ISSUES TO CONSIDER IN EARLY STUTTERING INTERVENTION

Introduction

In the development of theories to explain the nature and cause of stuttering, most researchers had hoped to be able to use these theories to develop treatments for stuttering. However, some treatments, such as the Lidcombe Program (LP) for early stuttering intervention were developed atheoretically whereas others, like the Stuttering Prevention and Early Intervention, are based on a model (i.e., the Demands and Capacities Model). Before discussing a few popular and common treatments for early stuttering, it is imperative to discuss natural recovery and the timing of early intervention, both of which are issues that are frequently associated with early stuttering and should be considered in a clinician’s decision-making with preschoolers who stutter.

Natural Recovery

Most clinicians now agree that stuttering should be treated in the early years, although this was a source of debate in the past (see Curlee & Yairi, 1997, 1998; Ingham & Cordes, 1998; Packman & Onslow, 1998). This debate arose because of the wide range of reported rates of natural recovery. Natural recovery refers to the disappearance of stuttering without the assistance of formal treatment or clinical intervention (Ingham, 1983; Yairi & Ambrose, 1999). Natural recovery is also referred to as spontaneous recovery, unaided remission and unassisted recovery. In this thesis, the term natural recovery will be used.
Chapter 2 Issues to Consider in Early Stuttering Intervention

Estimates of Natural Recovery

A number of studies and reviews have addressed the issue of frequency of natural recovery from stuttering. A comprehensive review by Bloodstein and Bernstein Ratner (2008) reported findings of natural recovery rates from the 1930s until the early 21st century that ranged from 9.5% to nearly 80%. This wide range of variation may be a result of different methodologies used by the different studies. The following sections will explore some possible explanation of these variations.

Research Design

Some studies before the 1990s reviewed by Bloodstein and Bernstein Ratner (2008) were retrospective in their designs. Retrospective designs are considered to be less reliable compared to prospective, longitudinal designs. This is because information gathered through retrospective designs may be affected by faulty memories (e.g., reports from parents), poor definitions of stuttering, and the inclusion of individuals who may have stuttered for only a brief period (Guitar, 2006). In addition, retrospective investigations lack tight criteria for recovery and objective speech-based data to substantiate variations in stuttering or claims of remission (Yairi & Ambrose, 1999). Therefore, these studies are not reviewed here.

Research in the 1990s and later proceeded more carefully, with more studies employing longitudinal or prospective design. This latter design enables closer monitoring of recovery in children observed from near the onset of stuttering (Yairi & Ambrose, 1999). It allows the observed children’s course of stuttering to be monitored for a period of time until they achieve criteria for consideration as spontaneously recovered or not recovered (persisted). Table 2.1 summarizes the estimates of natural recovery in studies since the 1990s, excluding the studies by Felsenfeld et al. (2000) and Kalinowski et al. (2005) because participants in the former study were adolescents and adults and the latter were of school-aged children which were not the age groups of interest in this research program.
Table 2.1

*Estimates of Natural Recovery*

<table>
<thead>
<tr>
<th>Paper</th>
<th>Method</th>
<th>Duration of follow-up</th>
<th>Participant sample</th>
<th>Estimated rate of natural recovery (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ramig (1993)</td>
<td>Longitudinal/survey study</td>
<td>One contact after 6 to 8 years</td>
<td>Clinical population (age 3 to 8 years) (n = 21)</td>
<td>10</td>
</tr>
<tr>
<td>Yairi, Ambrose and Niermann (1993)</td>
<td>Prospective, longitudinal study</td>
<td>6 months</td>
<td>Clinical population (age 6 years or younger) (n = 16)</td>
<td>38</td>
</tr>
<tr>
<td>Yairi and Ambrose (1999)</td>
<td>Prospective, longitudinal study</td>
<td>Minimum of 4 years</td>
<td>General population of children (age 6 years or younger) in Illinois, United States (n = 84)</td>
<td>74</td>
</tr>
<tr>
<td>Kloth, Kraaimaat, Janssen, and Brutten (1999)</td>
<td>Prospective, longitudinal study</td>
<td>4 years</td>
<td>Children classified as high-risk for stuttering in Holland (age 6 years or younger) (n = 23)</td>
<td>70</td>
</tr>
<tr>
<td>Månsson (2000)</td>
<td>Prospective, longitudinal study</td>
<td>2 years</td>
<td>General population of children (age 3 years) in Denmark (n = 51)</td>
<td>71</td>
</tr>
<tr>
<td>Ryan (2001)</td>
<td>Prospective, longitudinal study</td>
<td>Recovery rate was based on 1 year follow-up although the participants were followed up for 2 years</td>
<td>Clinical population (2 years 4 months to 5 years 10 months) (n = 22)</td>
<td>68%</td>
</tr>
</tbody>
</table>
Although longitudinal studies have access to more reliable data because they enable closer monitoring of recovery in the same participants from near the onset of stuttering for a period of time, longitudinal designs by themselves also differ in other aspects, one of which is the length of the study. For example, in the study by Ramig (1993), families of 21 participants were contacted again 6 to 8 years after their initial assessment and diagnosis of stuttering. Parents of all the participants had rejected the offer of fluency intervention during the initial assessment. Six to 8 years later, 19 of these children were reported by their parents to be stuttering. Seventeen of these were reassessed by the author and confirmation of the existing problem was made. Parents of the two other participants did not consent to their children being assessed. Thus, data were based on only 17 children who still stuttered at the time of reassessment.

In the study by Yairi et al. (1993), participants were followed for only 6 months from the onset of stuttering. During this period, half of the 38% of participants who were reported as “recovered” (see Table 2.1) still exhibited fluctuations in measurements of Other Dysfluencies (OD) and parental severity rating scores. In this study, OD referred to polysyllabic word repetition, phrase repetition, interjection, and revision-incomplete phrase. Although Stuttering-Like Dysfluencies (SLD), which will be further discussed in a later section, and clinicians’ severity rating scores decreased for these participants, these participants should have been monitored for a longer period. This is because it is well known that stuttering fluctuates over time, especially in young children (Ingham & Riley, 1998). Therefore, the rate of recovery reported might have overestimated the number of children who recovered, as some might have stuttered again after the 6 months monitoring period.

The study by Yairi and Ambrose (1999), which is part of a larger project in Illinois, followed the research participants for a minimum of 4 years after the onset of stuttering. However, out of the 126 stuttering children who participated, only 84 were observed for at least 48 months following onset of stuttering. Data for the remaining 42 children, 33% of the original sample, were not reported. These children might have differed from the other children in some important way. Thus, although the recovery rate
was reported as 74% (see Table 2.1), this figure is subject to serious question: If data for the additional 42 children were included, a different figure might have resulted.

The study by Kloth et al. (1999) was part of a 6-year prospective investigation of 93 preschool children who were classified as high-risk for stuttering because they were born into families with a stuttering father and/or mother. Of these 93 children, 26 children were still stuttering 2 years into the study. Four years after the onset of stuttering, 16 children (70%) were reported to have recovered and 7 (30%) continued to stutter. Data for the remaining 3 were not available because the families could not be located 4 years after the onset. Thus, the reported recovery rate of 70% was based on only 23 children.

In the study by Månsson (2000), results were based on an investigation spanning a period of 2 years. Out of the 1021 children who were screened, 51 children were identified to be stuttering. These children were followed up 2 years later and reexamined and 15 were still judged to be stuttering. The author acknowledged that the study’s limitation was that face-to-face reevaluations of the remaining 970 who were initially screened could not be done to identify new cases of stuttering. Indirect measures were used instead, such as examining school reports for entries concerning complaints or observations of stuttering, and interviewing various people, such as nurses, social workers, and teachers who knew the children. Thus, there may be new cases of stuttering that persisted or recovered and this could have affected the recovery rate reported. In addition, information was incomplete about whether treatment or clinical services were provided to those who recovered. Therefore, some of those who recovered might have received intervention rather than recovered naturally.

Ryan (2001) followed 22 preschool-age stuttering children for a period of 2 years. Fifteen (68%) were classified as recovered at 1 year. However, nine out of the 15 “recovered” were still stuttering at that time. They fulfilled the criteria of recovery only after several years of follow-up testing and parent ratings of severity. Therefore, this recovery rate is also an overestimate at the point of reporting.

From these studies, it is clear that even longitudinal studies differ in many ways as data collection was incomplete for some participants and some may have received treatment before the end of the study. Therefore, clinicians should be careful to
generalize the high estimate rates of recovery (Packman & Onslow, 1998) because this could affect the management of early stuttering.

_Diagnosis of Stuttering_

Methods of diagnosing stuttering may differ from clinic to clinic and from one research project to another. Factors that can influence the diagnosis of stuttering include:

_Variability of stuttering (speech sampling methods)._

It is known that stuttering varies at different times and during different speaking situations. However, speech sampling methods must be able to capture stuttering behaviours that are representative of the stuttering exhibited by research participants. Therefore, it is recommended that studies obtain speech samples at different times of the day and in different speaking situations (Davidow, Bothe, & Bramlett, 2006; Ingham & Cordes, 1998). For example, in the study by Yairi and Ambrose (1999), speech samples were obtained with different conversational partners over two different days. Speech samples ranged from 500 to 1500 syllables in length, with most samples ranging from 1000 to 1500 syllables. This method is probably more representative than the one used in the study by Månsson (2000), in which screening of the child’s language and fluency was made during one session in the child’s home for approximately an hour. In the Månsson (2000) study, assessment of fluency was made through structured play activities with a child and a parent interview. No speech sampling was obtained in the study by Ramig (1993), whereas in the study by Yairi et al. (1993), conversational speech samples in the clinic were obtained during three visits (initial evaluation, 3-month and 6-month follow-up). Each visit consisted of two sessions separated by a week. A speech sample was collected at each session, giving a total duration of 30 to 45 minutes at each visit. No beyond-clinic samples were obtained, therefore compromising the representativeness of the participants’ actual speaking behaviours.

Kloth et al. (1999) did not obtain multiple speech samples in different situations across various times. Thirty minute interactions between a mother and her child were videorecorded in the clinic at the start of the 6-year study (before any children were
reported to stutter) and at 4 years postonset of stuttering. However, these videorecordings were used to assess the children’s articulatory skills and their mothers’ communicative style and language complexity and were not used to diagnose stuttering. Presence or absence of stuttering was largely based on the judgment by the parents using a questionnaire described in the next section.

Ryan (2001) also did not use multiple speech samples in different situations across various times. This is probably because the study not only investigated the participants’ fluency but also articulation and language. Therefore, formal tests of articulation and language were carried out over 8 occasions over the 2-year period and fluency was judged during these occasions using the criteria described in the next section.

As we can see from the studies described, speech sampling methods varied across studies, thus providing different levels of representativeness of speaking situations of the participants in each study. When speech samples are limited to the clinic or certain speaking situations only, judgments of stuttering occurrence could be biased. This is because some participants may not have stuttered at all in these situations but stuttered in other situations that were not sampled. Therefore, recovery based only on limited speaking situations can affect natural recovery rates.

*Clinical identification of early stuttering.*

There is no consensus about how to identify early stuttering at the time of initial assessment and in the event of posttreatment relapse (Onslow, Packman, & Payne, 2007). The studies shown in Table 2.1 have used different methods to come to a diagnosis of early stuttering. In the study by Ramig (1993), the children who were followed up were assessed using a set of guidelines for distinguishing normal and abnormal nonfluencies (see Dalton & Hardcastle, 1977). Specifically, presence of stuttering was determined by the following: (a) too many abnormally long pauses or pauses used in inappropriate places in the utterance; (b) use of repetitions of sounds and syllables, prolongations, revisions, and or/or interjections; (c) inappropriate variation or abnormal intonation and stress (such as monotoning); (d) inappropriate speech rhythm; and (e) a slower than
normal speaking rate or sudden surges of fast rate. Stuttering severity was measured using the Stuttering Severity Instrument (SSI; see Riley, 1980).

Yairi et al. (1993) and Yairi and Ambrose (1999) used the Stuttering-Like Disfluencies/Other Disfluencies (SLD/OD) taxonomy with the criteria of at least 3 SLD per 100 syllables of spontaneous speech and stuttering severity of more than 2 (0 = normal speech, 7 = very severe) to be considered stuttering. SLD include part-word repetitions, monosyllabic word repetition, and disrhythmic phonation. Disrhythmic phonation includes sound prolongations, silent blocks, broken words, and other within-word interruptions (but not part-word and monosyllabic repetitions) that disturb the continuity of words. OD includes polysyllabic word repetition, phrase repetition, interjection, and revision-incomplete phrase. According to Wingate (2001), SLD is not a measure of stuttering per se because the definitions above do not distinguish between stuttered and nonstuttered disfluencies. In other words, although 3 SLD per 100 syllables is typically used to delineate stuttering and nonstuttering children, a child who displays 1 SLD per 100 words may still be stuttering (Lincoln & Packman, 2003). Percentage of syllables stuttered (%SS) is suggested to be a more accurate measurement of stuttering because it measures the rate of unambiguous stuttering (Lincoln & Packman, 2003) and has been the preferred method of measurements in some studies (e.g., Ingham, 1999).

In the study by Kloth et al. (1999), stuttering identification was “largely based on the judgment of the parents” (p. 255). Both parents had to report their child as stuttering and independently indicate on the Dysfluency Questionnaire that “at least one type of stuttering dysfluency (i.e., rapid sound or syllable repetition, tense silent or oral prolongation) had frequently or very frequently been [in] evidence at home during the previous 2 months” (p. 256). Because stuttering identification was not measured by an expert or a trained clinician but by parents, there exists a possibility of overestimation or underestimation of the presence of stuttering, thus compromising recovery statistics.

Månsson (2000) did not provide detailed information about how stuttering was identified, other than to say that “the clinician indicated the major characteristics of disfluency (such as repetitions or prolongations), whether or not the child’s speech was perceived as stuttering, and severity of stuttering” (p. 49). It was unclear how severity
was measured and how this method of identification played a role in the diagnosis of stuttering.

Ryan (2001) used the following criteria during an interview with a child to diagnose stuttering: (a) that the child produced more than 3.0 stuttered words per minute (SW/M: whole-word repetitions, part-word repetitions, prolongations, and struggle divided by the time talked) and (b) one or both parents perceived that the child stuttered. However, diagnosis of stuttering using this definition can be inaccurate because a child who stuttered on only one or two words is essentially still stuttering, even at this low level.

As a conclusion, studies reporting high recovery rates could be overestimating as children who were reported to be recovered could still be stuttering at a low level. In addition, using the SLD/OD taxonomy as a method to determine whether a child is stuttering or not might not be as accurate as claimed, leading to false negative identification. This is because a child’s stuttering could invariably be classified as OD and considered a normal disfluency, inflating the rates of recovery. Therefore, the high estimated rates of recovery indicated in the studies need to be carefully considered in light of how stuttering is diagnosed.

Participant Sampling

A good participant sample is a subgroup of a population that is regarded as representative in some way of the entire population or set of situations (Minichiello, Sullivan, Greenwood, & Axford, 2004). In studies of natural recovery rates, differences in participant sampling such as age range and gender can contribute to differences in recovery rates. Studies in which samples consist of a mixture of preschool and school-aged children will affect recovery rates because children who are stuttering at 6 years of age or older are more likely to persist rather than recover (see Ingham, 1999; Lincoln, Onslow, Lewis, & Wilson, 1996). In regards to gender, studies that consist of more females could also affect recovery rates because females are more likely to recover naturally compared to males (Packman et al., 2003). However, the samples in the studies reviewed did not appear to be obviously imbalanced and therefore, the gender factor is
not discussed further. Sampling from the general population versus the clinical population will also affect recovery rates. According to Packman et al. (2003), recovery rates for children whose parents bring them to the speech clinic because of stuttering are expected to be lower. This is because parents usually bring their children to the clinic after the child has been stuttering for months, or even years, and not immediately following onset. Children who experience short periods of stuttering may not be brought to the clinic. Therefore, sampling from the general population would include more children who recovered naturally as compared to the clinical population.

In the study by Ramig (1993), the 21 participants were children who were initially diagnosed as needing intervention for stuttering 6 to 8 years previously. These children ranged from 3 to 8 years of age. Nine out of the 17 children who were still stuttering at the reevaluation were at least 6 years old when diagnosed as stuttering. This could have accounted for the comparatively low recovery rate (10%) reported by this study (see Table 2.1).

The 16 participants in the study by Yairi et al. (1993) were children suspected of exhibiting stuttering and were referred for initial speech evaluation on the initiative of their parents, physicians or speech pathologists, and by staff members of daycare centers. These children ranged in age from 25 to 39 months (mean = 32.63 months, SD = 3.96). Although the age range did not cover preschool up to 6 years, the recovery rate for this study (38%) is considered more representative for a preschool population compared to a study that includes school-aged children, such as the study by Ramig (1993).

In the study by Yairi and Ambrose (1999), 84 preschool children closely followed for 4 years from the onset of stuttering were between the ages of 24 months to 59 months old (mean = 39.81 months, SD = 8.50). This study’s participant sampling is considered more representative for a preschool population because it covered a wider age range and did not include school-aged children. However, participants were from the general population and this could have accounted for the higher recovery rate of 74% compared to the clinical population sampling of Ramig (1993) and Yairi et al. (1993).

In the study by Kloth et al. (1999), the 23 preschool children who were followed for 4 years after stuttering onset were between the ages of 25 months to 63 months.
Chapter 2 Issues to Consider in Early Stuttering Intervention

Although this range is considered more representative for a preschool population because it covered a wider age range, these children were from a select group of children who were classified as “high-risk” because they had a parental history of stuttering. This excluded other children who were stuttering but not considered “high-risk.” Yet, these children who do not have a parental history of stuttering could also have persisted or recovered naturally, giving a different rate of recovery.

In the study by Månsson (2000), the 51 children followed for 2 years were 3 year olds at the start of the study. Two additional cases of stuttering were found later during the follow-up surveys but the recovery rate reported in the study was based only on the original 51 children. Of the 51 children at the start of the study, 36 (71%) were judged to have recovered. Like the study by Yairi and Ambrose (1999), the high recovery rate could possibly be due to the sampling being from the general population and not the clinical population.

However, the recovery rate (68%) reported in the study by Ryan (2001) was comparatively high for a clinical population. Participants consisted of 22 children who stuttered who were referred by their parents. Participants’ age ranged from 2 years 4 months to 5 years 10 months (mean = 4 years 2 months, SD = 11 months). Other factors, which have been discussed earlier, such as a biased speech sampling or a different clinical identification of stuttering leading to a different recovery criterion, could possibly have contributed to the high recovery rate.

In general, recovery rates are influenced by many factors. However, in a clinical context for early stuttering intervention, it is more relevant for a clinician to refer to studies that had sampled the preschool clinical population as guidance in their clinical decision-making in regards to potential natural recovery rates for children who present at the clinic.
Chapter 2 Issues to Consider in Early Stuttering Intervention

**Timing of Natural Recovery**

According to Bloodstein and Bernstein Ratner (2008), recovery appears to occur at any age although the younger the person, the better are the chances of natural recovery. Findings from Yairi et al. (1993) in which participants ranged in age from 25 to 39 months (mean = 32.63 months), indicated that for many subjects who were classified as “recovered” at their 6-month follow-up, the peak of stuttering was reached during the first 2 to 3 months before its sharp decline.

In the study by Yairi and Ambrose (1999), those who recovered (74%) had a mean age of 38.80 months (SD = 8.16) whereas those who persisted had a mean age of 43.52 months (SD = 8.33) at entry into the study. Data from this study showed that duration of stuttering tends to range from 6 to 35 months for most, with some children stuttering for as long as 3 to 4 years before recovery.

In the Månsson study (2000), 71% of the 3-year olds who participated in the study had stopped stuttering within 2 years. In the Ryan (2001) study, 68% of the participants, with a mean age of 4 years 2 months, were classified as recovered at the end of the 1-year period. In contrast to the pattern of all the studies described, findings from Ramig (1993) found relatively little recovery in most of its participants aged 4 years and older.

From these studies, it appears that natural recovery occurs most frequently within the first few years after onset, with recovery more likely for children in the age range of 2 to 3 years. Natural recovery appears to decrease among older participants.

**Predictors of Natural Recovery**

Clinical decision-making would be made easier if clinicians could predict which children will recover naturally and which children will persist in stuttering without formal treatment. There are some studies that suggest factors that tend to be associated with natural recovery but prediction of whether a particular child will recover naturally or persist in stuttering still remains impossible. The factors thought to be associated with
natural recovery are (a) phonological and language abilities, (b) age, (c) time since onset of stuttering, (d) stuttering severity, (e) gender, and (f) family history of natural recovery.

**Phonological and Language Abilities**

In a longitudinal study by Yairi, Ambrose, Paden, and Throneburg (1996), 20 children who stopped stuttering within 36 months of onset and 12 who continued to stutter throughout this period, were compared. All children were under 6 years of age although those who persisted were 11 months older on average than those who recovered. It was reported that recovering children scored higher than persistent participants on the Preschool Language Scale-Revised (Zimmerman, Steiner, & Pond, 1979). The test was administered at entry into the study and one year later. From the graphs presented, mean score at first visit for the persistent group was 110, whereas mean score for the recovered group was approximately 125. On the second testing, mean score for the persistent group was slightly below 110 whereas mean score for the recovered group was slightly below 125. These differences between groups were statistically significant for both testing periods. A discriminant analysis was used to determine the ability of combinations of variables to predict chronicity versus recovery. Although findings indicated that stuttering chronicity and language capabilities are related, the nature of the relationship cannot yet be clearly defined.

In a preliminary study by Paden and Yairi (1996), early phonological characteristics between children whose stuttering persisted and those who recovered from early stuttering were examined. Thirty six children, 12 whose stuttering persisted at least 3 years (Persistent), 12 who recovered within 18 months of onset (Early Recovered) and 12 who recovered between 18 to 36 months after onset (Late Recovered), were assessed with the Assessment of Phonological Processes-Revised (see Hodson, 1986). Each group was matched with age and sex-matched control groups. Findings indicated that there were significant differences between the Persistent group and its control group in their mean percentage of phonological error scores. The Persistent group was also noticeably poorer in phonological aspects than both of the Recovered groups. The Persistent group’s mean percentage of phonological error score was poorer, the number of children scoring
in the Moderate or Severe range of phonological deficiency was larger, all but one of the mean scores on specific phonological patterns for this group were poorer, and the number of children scoring at least 40% in error on specific patterns was larger, as well as the number who showed age-inappropriate amounts of error on specific patterns. However, large individual differences within all the experimental groups showed that the level of phonological skill as a factor by itself is insufficient as a predictor for persistence or recovery from stuttering. Scores on phonological patterns showed a wide variation and there were considerable overlaps between groups. However, the authors suggested that an individual’s mean phonological error score, percentages of error score on specific patterns, and age-inappropriate percentages of error on specific patterns, when combined with other factors such as age of onset, language measures, stuttering characteristics, and genetics, might result in a formula that could reasonably predict persistence or recovery from stuttering.

In a later study, the initial status of phonological abilities (Paden, Yairi, & Ambrose, 1999) and the expressive language abilities (Watkins, Yairi, & Ambrose, 1999) of the 84 children from the Illinois project described earlier (Yairi & Ambrose, 1999) were investigated to discover whether there are any differences between the subgroups of children who stutter: children who recovered naturally and children who persisted in stuttering. Findings from Paden et al. (1999) indicated that the children who persisted in stuttering exhibited poorer phonological abilities around the time of stuttering onset when compared to the children who recovered naturally, although the difference in mean scores between the Persistent and Recovered groups were not significant. Mean percentage of error score for the Persistent group was 27.50% whereas mean percentage of error score for the Recovered group was 22.1%. It was also found that an individual child’s mean percentage of error on phonological patterns obtained at that time cannot, by itself, predict the course any one child’s stuttering will take. These findings suggest that although there were differences in the phonological abilities between children whose stuttering persisted and recovered, these differences were not significant. There was still no way to predict at the onset of stuttering which child would persist or recover.
With regards to expressive language abilities in children who recovered and persisted in stuttering, data obtained from a study by Watkins et al. (1999) did not reveal any clear or systematic differences in the expressive language performance near stuttering onset of these children. These findings were supported by the results of Ryan (2001) in that measures of articulation and language skills appeared to have little value in identifying persistent or transient stuttering problems.

None of the studies indicated any way to predict recovery from stuttering or persistency of stuttering. Perhaps, as suggested by Paden and Yairi (1996), prediction of persistence or recovery depends on a combination of factors.

**Age at Onset and Time Since Onset**

Yairi et al. (1996) reported that children who recovered naturally were younger at stuttering onset. In other words, they usually began to stutter before 3 years of age. Those who recovered within 18 months of stuttering onset had a mean age of 33.6 months at stuttering onset. Those who recovered between 18 and 36 months postonset had a mean age of onset at 30.2 months. Those who persisted had a mean age of onset at 38.67 months. Analysis of variance showed statistical difference between the persistent subjects and the recovered subjects. Those who persisted began stuttering five to eight months later compared to those who recovered. Results also suggested that a child who has stuttered for more than 12 months has an increasing chance of continuing to stutter, although some spontaneous recovery continues to occur.

**Stuttering Severity**

Stuttering severity near onset of stuttering was not a prognostic indicator of recovery (Ryan, 2001; Yairi et al., 1996). In Yairi et al. (1996), four observations were made. First, the initial level of SLD was appreciably higher in the recovered group than in the persistent group. Second, the persistent group was relatively stable. In other words, the graph trend showing the persistent group’s means of frequency of SLD over time was relatively flat. Third, while there was little change over time in the persistent group, there was a slow drop of SLD in those who recovered between 18 and 36 months postonset,
but a quicker decline in those who recovered within 18 months postonset. Fourth, the data indicated divergence between the developmental course of the persistent and recovered groups as early as 7 to 12 months after stuttering onset. Analysis of variance indicated a statistically significant difference between groups at this time interval.

Ryan (2001) also found a similar trend, in that children who recovered showed a downward trend in their stuttered words per minute (SW/M) at the fourth test period (end of the first year). There were a total of eight tests over a 2-year period. Six of these recovered children had SW/M of below 3.0 at the fourth test period and nine showed SW/M above 3.0 with a downward trend of SW/M. Children who persisted were found to have SW/M above 3.0 at the fourth test period with a flat or increasing trend in SW/M.

Both these studies indicate possible trends in stuttering measurements between children who persisted and children who recovered from stuttering. However, stuttering severity is not a factor that can predict which child will recover and which child will not. Nevertheless, these results may have important clinical implications such as how long to wait before deciding to start intervention. For example, if a child’s stuttering is clearly not decreasing within 12 months of onset, a decision might be made to start intervention, taking into account other relevant factors.

**Gender**

Research evidence indicates that girls are more likely to recover naturally than boys. Ambrose, Cox, and Yairi (1997) investigated the immediate and extended families of 66 stuttering children to determine frequencies of cases of persistent and recovered stuttering. Results indicated sharply different sex ratios of persistent versus recovered people who stutter, in that recovery among females was more frequent than among males. This was further supported by a longitudinal study by Yairi and Ambrose (1999) that reported 84.6% of recovery in females and 69.0% of recovery in males.

In a longitudinal Danish study by Månsson (2000), results further indicated that girls tended to recover in a higher proportion than boys. This was indicated by the increase of male to female ratio in stuttering from 1.65:1 at the initial screening to 2.8:1 at later follow-ups. However, this study followed only 3-year-olds for 2 years, unlike the
other studies, which had a wider range of preschool age groups. Despite the difference in methodology between studies, it is safe to say that the chances of girls recovering are better than for boys, all other variables being equal.

*Family History of Natural Recovery*

Studies over the years have established that, to a significant degree, stuttering runs in families (e.g., Ambrose et al., 1997; Ambrose et al., 1993; Yairi et al., 1996). Results from the study by Yairi et al. (1996) described in earlier sections indicated that children with unaided remissions had many more relatives who recovered naturally than those who continued to stutter. In contrast, those who continued to stutter had many more relatives whose stuttering persisted. In other words, those who had family history of natural recovery from stuttering had a better chance of natural recovery than those who did not.

In a study by Ambrose et al. (1997), pedigree and segregation analyses were used to examine patterns of transmission among the immediate and extended families of 66 stuttering children. A pedigree is a schematic representation of related individuals, indicating generational levels and degree of relatedness. It has been frequently used to obtain information on complex behavioural traits (Pauls, 1983). Segregation analyses are statistical analyses that allow testing of nested models of genetic transmission (see Lalouel & Morton, 1981; Lalouel, Rao, Morton, & Elston, 1983). Ambrose et al. (1997) found that recovery or persistence was indeed transmitted, although direct genetic link was unclear. In other words, persistence and recovery tend to run in families.

It is still not known what inherited traits lead one child to develop chronic stuttering while another child does not. Starkweather (2002) suggested a possibility of a predisposition to recovery based on some genetically influenced speech or language skills that aids in overcoming the stuttering at a relatively early age. Results from a study by Wittke-Thompson et al. (2007) suggested that stuttering is a polygenetic disorder, in that several genes of varying effect may increase susceptibility to stuttering. This polygenetic influence could also explain why some children are susceptible to recovery and some are
not, but identification and characterization of the genes that are involved has still not occurred.

To conclude, natural recovery is a phenomenon that will affect timing of intervention. Clinicians need to decide when to begin treatment or how long treatment should be withheld in the hope that natural recovery might occur. Although several factors that might increase the chances of a person recovering naturally from stuttering were discussed, such as early onset, being a girl, and having a strong family history of natural recovery, it is still not conclusive that having all these factors will result in natural recovery for an individual at all. There is still a chance that stuttering might persist. Clinicians also need to consider additional factors such as the effects of stuttering on the child and family (Packman et al., 2003). The art of clinical decision-making is individualized to each child and there is no clear cut formula or criterion that a clinician has to follow. Rather, a variety of factors need to be considered carefully during the process of decision-making. In the following section, timing of intervention is discussed.

**Timing of Intervention**

Since the late 1990s, the implications of natural recovery from stuttering have fueled a lively debate on the timing of intervention for early stuttering. The issue is whether to delay treatment for at least 2 years postonset of stuttering and hope that natural recovery may take place (Curlee & Yairi, 1997, 1998) or to intervene early, as early as 6 months postonset of stuttering (Ingham & Cordes, 1998; Packman & Onslow, 1998).

Two randomized controlled trials of the LP (Jones et al., 2005; Lewis, Packman, Onslow, Simpson, & Jones, 2008) and two randomized clinical experiments (Harris, Onslow, Packman, Harrison, & Menzies, 2002; Lattermann, Euler, & Neumann, 2008) have demonstrated that the positive impact of the LP exceeds the effects of natural recovery. However, long-term data have yet to be documented (Jones et al., 2008). Nevertheless, these have contributed to the consensus that stuttering should be treated in
the preschool years (Harris et al., 2002; Jones et al., 2005). This is also because stuttering becomes less tractable as children get older, presumably because neural plasticity decreases with age. It is also known that stuttering becomes more entrenched and more difficult to modify compared to early in its development, and that treatment takes longer (Ingham, 1999; Lincoln et al., 1996).

In addition, it is not possible to predict whether an individual child will recover naturally or not. Intervention in the preschool years is therefore essential. At most, a clinician could wait 6 to 12 months after onset, monitoring the child every 3 to 6 months, and then decide whether to initiate or further delay treatment (Richels & Conture, 2010), as long as the child is still in the preschool years. Clinicians should not withhold treatment on the grounds that there is a chance that recovery might eventually occur. Once stuttering becomes chronic, communication can be severely impaired, with devastating social, emotional, educational, and vocational effects.

For a speech clinician, deciding when to intervene is only half the issue: They must also decide which intervention to use. The following chapter provides a view on the importance of using an evidence-based approach when choosing a treatment. An evidence-based approach is designed to ensure that clients receive the best possible services, informed by the highest quality of evidence available (Johnson, 2006). It is also believed that using such a framework is more likely to result in a clinically significant outcome (Finn, 2003). Thus, although there are many early stuttering treatments available, Chapter 3 provides a review of three early stuttering treatments that are popular and commonly practiced, in order to select an intervention with the best available evidence to be used in this research program.
CHAPTER 3
TREATMENT OF EARLY STUTTERING

Introduction

New evidence-based treatments, and improvements on existing treatments, come slowly. A treatment goes through stages of development and evaluation before it can be considered effective or efficacious. Efficacy has been defined as the extent to which a specific intervention, procedure, regimen, or service produces a beneficial result under ideally controlled conditions when administered or monitored by experts (Thomas & Howell, 2001). In contrast, effectiveness is the extent to which an intervention or treatment employed in the field does what it is intended to do for a specific population under average conditions of use (Robey, 2004; Thomas & Howell, 2001).

According to Jones, Gebski, Onslow, and Packman (2001), Phase I and II trials are the means to provide empirical evidence to support the mounting of a Phase III trial, also known as a randomized controlled trial (RCT), the “gold standard” methodology for treatment efficacy research. Phase I trials assess the safety of the new treatment, while Phase II trials determine whether there is reason to be confident of the potential efficacy of the new treatment. According to Robey (2004), Phase I research comprises case studies, discovery-oriented single-subject studies, small-group pre-post studies, and retrospective studies. Research designs such as clinical reports, small group studies and single-case studies are used to demonstrate potential therapeutic effects of a new treatment (Botterill & Kelman, 2010) and meant to be exploratory (Robey, 2004). Phase II research includes small-group within-effect studies, case-control studies, and small-group cohort-control (experimental vs. control) studies. Phase III randomized controlled trials compare two or more treatments, to determine whether a new experimental treatment is superior to the current standard treatment or to no treatment.
However, no single study (e.g., randomized controlled trial), no matter how well designed, can provide adequate evidence of the efficacy of a treatment. The strongest evidence for practice is found when multiple studies, conducted by different investigators, demonstrate similar effects and converge on similar conclusions (Johnson, 2006). Even then, this is not enough as it still does not give us information about how effective or applicable an intervention is in a real-life situation. This is because efficacy studies are conducted in controlled situations which unfortunately, are not controllable in a real clinical setting.

This brings us to Phase IV research, which aims to assess the degree to which the therapeutic effect is realized in day to day clinical practice (Robey, 2004). The research designs of Phase IV comprise pre-versus-post studies, parallel-groups studies, and hypothesis-driven single-subject studies. Research emphasis shifts towards treatment effectiveness (Botterill & Kelman, 2010). According to Botterill and Kelman (2010) in regards to early treatment for stuttering, Phase IV research aims to establish whether an approach is also effective when implemented in other settings with different subgroups of children who stutter after an approach is demonstrated to be efficacious under optimal conditions. In other words, Phase IV research should demonstrate that the approach can be successfully implemented by clinicians who have received training but are not necessarily specialists in the approach.

Phase V research focuses on the issues of cost effectiveness (Botterill & Kelman, 2010; Robey, 2004). The costs and values are assessed in fiscal terms through cost-effectiveness studies and usually involve regulators, policy makers, and legislative bodies (Robey, 2004). In the treatment of stuttering, Phase V research also focuses on client satisfaction and the effect of therapy on quality of life (Botterill & Kelman, 2010).

Without doubt, a treatment takes a long time to be established as efficacious and effective. Thus, clinicians must continually update themselves with the current evidence-based treatments in order to provide the best possible care for their clients.

It is not within the scope of this document to provide a comprehensive summary of all the approaches for early stuttering. Instead, this chapter will focus on three early stuttering treatment approaches that have the most recent evidence and are commonly reported in the literature. These selected approaches were also selected because of its
promising outcomes for preschoolers who stutter in recent reports. These approaches are (a) treatments based on the DCM, (b) Palin Parent-Child Interaction Therapy (PCIT), and (c) the Lidcombe Program (LP). Available clinical trials of each treatment approach are evaluated and summarized to provide a means for selecting the best available treatment for use in this research program.

Clinical trials are categorized loosely within the Phase I to III classification system (Robey, 2005). The definition for a clinical trial of a stuttering treatment used in this thesis is as defined by Onslow, Jones, O’Brian, Menzies, and Packman (2008): (a) a prospective attempt to determine the outcome or outcomes of (b) at least one entire treatment with (c) at least one pretreatment and one follow-up outcome of at least 3 months in the case of a reported positive outcome, and (d) where outcomes involve speech observations that are independent of treatment and derived from recordings of conversational speech beyond the clinic. This does not mean that results from retrospective studies or clinical experiments are not useful because they allow preliminary statistical inference to supplement clinical trials. However, retrospective studies admit sources of bias because outcome measures that were reported were obtained by the treating clinicians who were not independent. Experimental studies, on the other hand, do not provide clinicians with the fundamental knowledge of the outcome of a treatment if it was administered in its entirety (Onslow et al., 2008).

References from Onslow et al. (2008) and the Stuttering Treatment Research Evaluation and Assessment Tool (STREAT; Davidow, Bothe, & Bramlett, 2006) are used as a general guide to aid the evaluation of the clinical trials in the later sections. Table 3.1 shows the components and the minimal requirements or recommendations for each component, which are considered to be of importance when evaluating the efficacy of an early stuttering intervention. The primary outcome of most interest in the current review is stuttering frequency. This is not to say that other outcomes such as speech rate, number of clinical sessions, and the impact the approach may have on the child and parent are not important, but when selecting a treatment to trial in Malaysia, decreased stuttering is considered of greatest priority.
Chapter 3 Treatment of Early Stuttering

The following evaluations and summaries based on the components in Table 3.1 are not intended to dictate what is good or bad research but to allow a reader to understand the weaknesses and limitations of studies, and which studies are more reliable and credible when discussing efficacy of early stuttering treatments.

*Treatments Based on the Demands and Capacities Model*

The developers of the Demands and Capacities Model (DCM), described in Chapter 1, have developed a program known as the *Stuttering Prevention and Early Intervention* based on the model (see Gottwald, 2010; Gottwald & Starkweather, 1999; Starkweather & Givens-Ackerman, 1997; Starkweather et al., 1990). Gottwald (2010) also reported a number of treatment programs that present strategies to help young children improve their fluency by increasing capacities and/or demands (see Gottwald, 2010). Although these programs did not use Stuttering Prevention and Early Intervention per se, strategies used were similar to what is proposed in the Stuttering Prevention and Early Intervention. This section will describe only the Stuttering Prevention and Early Intervention program.

The Stuttering Prevention and Early Intervention is a multidimensional approach that has been very much publicized (e.g., Issue 4, Volume 25 of the Journal of Fluency Disorders) and debated in the literature (see Bernstein Ratner, 2000; Ingham & Cordes, 1997; Packman & Attanasio, 2004; Siegel, 2000; Yaruss, 2000). Treatment is based on the belief that stuttering develops when the demands of the child’s communicative environment exceed the child’s motor, language, emotional, and cognitive capacities for fluent speech, or when the child lacks the capacity to meet the environmental demands for fluent speech. As described earlier in Chapter 1, *demands* are expectations from the child’s environment to speak fluently (Gottwald & Starkweather, 1999) whereas *capacities* refer to areas of skills that contribute to fluent speech (Gottwald, 2010). Thus, goals of treatment are two-fold: support or enhance the child’s capacities for producing fluent speech, while at the same time decrease or reduce the demands or stressors on the
### Table 3.1

**Important Considerations When Evaluating a Clinical Trial of an Early Stuttering Intervention**

<table>
<thead>
<tr>
<th>Research Phase</th>
<th>Participant Sampling</th>
<th>Outcome Measurements</th>
<th>Treatment Fidelity</th>
<th>Data Fidelity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Selection</td>
<td>Effect Size</td>
<td>Minimal Requirements or Recommendations</td>
</tr>
<tr>
<td>I</td>
<td>&lt; 10</td>
<td>Arbitrary</td>
<td>Not relevant</td>
<td>Minimum baseline: 1 month</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Minimum follow-up: 3 months to 12 months in the case of a treatment effect.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No follow-up in the event of no treatment effect.</td>
</tr>
<tr>
<td>II</td>
<td>&gt; 10</td>
<td>Arbitrary</td>
<td>Not relevant</td>
<td>Requires beyond-clinic data (conversational speech).</td>
</tr>
<tr>
<td>III</td>
<td>Depends on Phase II results</td>
<td>Randomized allocation to groups</td>
<td>Needs to be determined</td>
<td>Minimum of 3-min or 500 words/750 syllables of speech samples.</td>
</tr>
</tbody>
</table>
child’s current level of fluency, which may come from the environment or from the child. Therapy is individualized after an assessment that evaluates the child’s capacities for fluent speech and identifies the demands that are stressing these capacities. Assessment is done informally through observation and the gathering of information from the child’s significant others and formally through certain measures such as formal language tests (see Gottwald & Starkweather, 1999; Starkweather & Givens-Ackerman, 1997).

This treatment incorporates both indirect and direct approaches (Guitar & McCauley, 2010). Indirect approaches refer to modifications of the child’s environment that include changing parental behaviours such as using a slower rate of speech, substituting comments for questions, having uninterrupted interaction times with the child, and scheduling daily activities at a pace suitable for the child, to reduce tension that is believed to cause fluency breakdown. Family counseling and education are also part of the indirect component included during treatment. Direct approaches refer to changing the child’s speech behaviours such as teaching the child to use a slower rate of speech, how to use normal disfluencies and how to replace stuttering with a less struggled production of the word (see Gottwald, 2010; Gottwald & Starkweather, 1999; Starkweather & Givens-Ackerman, 1997). According to Gottwald and Starkweather (1999), when working with preschoolers who stutter and who show signs of struggle, therapy aims to reduce negative reactions that lead to speech struggle. This can be done by helping the child to identify their stutters, label them appropriately, and teach the child how to change the quality of stuttering by substituting a less tense, more normal dysfluency through modeling (see also Gottwald, 2010). Parents were encouraged to praise the child’s new speech skills and let the child know how much they enjoy listening to him or her (Gottwald, 2010; Guitar & McCauley, 2010).

Treatment involves a combination of working with the child individually and family counseling (Gottwald, 2010). The amount of time allocated for each component varies according to the needs of the child and family. As stuttering decreases, small group sessions may replace individual sessions and sessions are scheduled on a less frequent basis. When the child’s fluency approaches “normal levels” (Gottwald & Starkweather, 1999, p. 77) or when the child’s fluency is “less than 3 %SS and struggled stuttering has
been removed” (Gottwald, 2010, p. 112), the child will be discharged from therapy. Follow-up occurs every 3 months for the first 6 months and 1 year from the discharge date. In the second year after discharge, periodic phone calls are made to the family. The family is encouraged to call the clinic for a follow-up visit if there are any concerns about their child’s fluency.

**Efficacy of Treatments Based on the Demands and Capacities Model**

Anecdotal reports and articles of treatment outcomes have claimed success with some families who have participated in the *Stuttering Prevention and Early Intervention* (e.g., Gottwald & Starkweather, 1999; Starkweather et al., 1990). Gottwald (2010) also reported outcome data of studies that had addressed capacities and/or demands. However, none of these fulfill the criteria of a clinical trial as defined earlier. Thus, they have been excluded from review. A study by Franken, Kielstra-Van der Schalk, and Boelens (2005) that compared a “12-week dose” of treatment based on the DCM to a “12-week dose” of the LP has also been excluded. This is because neither treatment was administered in its entirety and there was no follow-up, although reductions in stuttering frequency and severity occurred with both treatments for 30 preschool children randomly assigned to treatment groups.

Despite the claim of success, a series of publications and a few reviews have questioned the logical weaknesses of the treatment approach based on the DCM model (see Bernstein Ratner, 2000; Ingham & Cordes, 1997; Packman et al., 2004; Siegel, 2000; Yaruss, 2000). These weaknesses can be summarized in terms of: (a) inadequacy of definition of the specific constructs underlying the DCM (Bernstein Ratner, 2000; Ingham & Cordes, 1997; Siegel, 2000; Yaruss, 2000); (b) difficulty in assessing demands and capacities that are not directly observable, especially in clinical practice (Siegel, 2000; Yaruss, 2000); and (c) a lack of empirical evidence to support the notion that the “demands” as defined in the DCM are linked to children’s fluency and that by changing parental behaviours, demands are reduced and fluency increased (Bernstein Ratner, 2000; Packman et al., 2004).
Over the past few decades, results from studies (Egolf, Shames, Johnson, & Kasprisin-Burelli, 1972; Guitar, Kopf-Schaefer, Donahue-Kilburg, & Bond, 1992; Langlois & Long, 1988; Stephenson-Opal & Bernstein Ratner, 1988; Winslow & Guitar, 1994; Zebrowski, Weiss, Savelkoul, & Hammer, 1996) that have investigated the effects of modifications of certain parental behaviours on preschoolers’ fluency have been inconsistent. The parental behaviours studied included speech rate (Guitar et al., 1992; Langlois & Long, 1988; Stephenson-Opal & Bernstein Ratner, 1988; Zebrowski et al., 1996), turn taking skills (Langlois & Long, 1988; Winslow & Guitar, 1994) and linguistic skills (Guitar et al., 1992; Langlois & Long, 1988). Some studies have reported investigating each parental behaviour independently while trying to control other variables (e.g., Stephenson-Opal & Bernstein Ratner, 1988; Zebrowski et al., 1996); others investigated a combination of variables (e.g., Egolf et al., 1972; Guitar et al., 1992; Langlois & Long, 1988). Participants ranged from single subject to four subjects. Inconsistent and inconclusive results were obtained. Missing information about pre- and postspeech measures (e.g., Langlois & Long, 1988), inadequate information on reliability of speech measures (e.g., Langlois & Long, 1988; Stephenson-Opal & Bernstein Ratner, 1988) and poor interjudge reliability (Egolf et al., 1972) of speech measures have further contributed to the lack of evidence that parental behaviour modifications had any significant influence on preschoolers’ fluency.

In conclusion, treatment approaches based on the DCM are questionable due to lack of empirical evidence. Claims of success could be attributed to many factors, one of which could be natural recovery. Research is needed to show the efficacy of treatments based on the DCM and until then, these treatment approaches cannot be considered evidence-based but rather assertion-based (Onslow, 2003a).

**Palin Parent-Child Interaction Therapy**

Palin Parent-Child Interaction therapy (PCIT) is a stuttering therapy program developed at the Palin Centre in the early 1980s (Rustin, Botterill, & Kelman, 1996), for children up to 7 years of age (see Botterill & Kelman, 2010; Kelman & Nicholas, 2008).
It has been further developed and modified over the years in response to clinical experience and user feedback and a manual has been published (see Kelman & Nicholas, 2008). Similar to the Stuttering Prevention and Early Intervention described earlier, this approach is based on a multifactorial perspective that many factors contribute to the moment of stuttering and its development, and account for a child’s underlying vulnerability to stuttering and its onset.

The primary goal of the Palin PCIT is to establish parental understanding, knowledge, skill, and confidence in managing stuttering in their children. Its approach is indirect in that it focuses on changing parental behaviour to influence the child’s speech. The child’s stuttering is not directly addressed but monitored to ensure that stuttering decreases as parents gradually change the child’s environment, including their own interactional behaviours.

After a multifactorial assessment that comprises a thorough evaluation of the child’s receptive and expressive language skills, articulation, speech rate, communication skills, and parental interview, the Palin PCIT is implemented in three stages. The first stage consists of six weekly, clinic-based sessions that parents attend with their child. During these clinic sessions, videorecordings of parent-child interaction in the clinical setting are used as a basis to guide and explore ways in which parents can enhance their child’s fluency. Strategies to support a child’s fluency and minimize the impact of stuttering include interaction, family and child strategies. For example, interaction strategies may include parents changing their speech rate, length, and complexity of utterances, turn taking and pausing, and following a child’s lead. Examples of family strategies include strategies to manage anxiety about stuttering, coping with highly sensitive children, and confidence building. Examples of child strategies may include direct speech modification, language, or speech sound therapy. Child strategies are incorporated when a child’s improvement is insufficient or has reached a plateau while parents remain concerned. Parents are also required to establish a 5-minute Special Time with their child at home three to five times a week. Other components of the PCIT include behaviour management and praised and rewards for good behaviours which are noted in a “praise log” (pg. 81, Botterill & Kelman, 2010).
In stage two, parents continue to implement the Palin PCIT at home for 6 weeks without the need to attend the clinic. Ten-minute contacts (by telephone, letter, or email) are made between the parents and clinician in this stage.

The third stage starts with a Review Session in which clinical decisions are made through progress reports from parents and formal assessments in the clinic. If the child achieves less than 3% SS or the parents are no longer concerned, the child continues to be monitored every 3 months for a year. In some cases, additional clinic-based sessions may be offered as appropriate.

Efficacy of the Parent-Child Interaction Therapy

Matthews, Williams, and Pring (1997) conducted an experimental single case study using assessment procedures proposed by Rustin et al. (1996). The study incorporated three phases in that the first phase was a 6-week baseline phase, the second phase was a 6-week intervention phase and the third phase was a 5-week follow-up phase. Although this study did not fulfill Onslow et al.’s (2008) definition of a clinical trial, it was cited as Phase IV research by Botterill and Kelman (2010) because a nonspecialist clinician in a nonspecialized clinical context administered the treatment. However, it was unclear whether the 6-week intervention phase was the entire treatment or just a “dose” of the PCIT. Thus, this study will not be evaluated for its efficacy outcome.

In a Phase 1 clinical trial, Millard, Nicholas, and Cook (2008) investigated the efficacy of the Palin PCIT in a longitudinal study involving six preschoolers. Nine were originally recruited but therapy was not recommended for two after assessment and one withdrew because the parent was unable to meet research and clinical commitments. Ages of those who participated ranged from 3 years 3 months to 4 years 10 months. Four were male and two were female. This study was conducted in three phases. Phase A was a 6-week no-treatment baseline, Phase B was a 12-week treatment phase and Phase 3 was a 1-year posttreatment phase. Phase B consisted of six weekly clinic-based sessions and 6 weeks of home-based therapy. Treatment was described briefly with references to its format and procedures. Pretreatment videorecordings of parent-child interaction (one
with the father, one with the mother) were made each week for 6 weeks. Posttreatment recordings were made on a monthly basis for a year. All recordings obtained were from beyond the clinic. Each recording was 20 minutes in duration from which the first 5 minutes were omitted and the following 10 minutes were orthographically transcribed for analysis. Stuttering measures were in percentage syllables stuttered (%SS). Transcriptions from one point in each phase were randomly selected for blind analysis by a second rater. Interrater agreement was 96.9%, based on point-by-point agreement for the presence of stuttering in each syllable. It was not reported whether the second rater was independent of the research. Intrarater agreement was also not reported. Through cusum analyses, results from this study demonstrated that 4 out of 6 children had statistically significant reductions of stuttering with both parents. However, raw %SS scores were not reported. Therefore, the clinical significance of the reductions could not be determined. One child reduced stuttering frequency with the father only and a direct therapy program was continued after the end of the study. Another child’s stuttering did not reduce significantly with either parent and a direct therapy program was recommended, after which significant reduction of stuttering was observed. The “direct” therapy program was not described in detail. A summary of this study is given in Table 3.2.

In another Phase 1 clinical trial, Millard, Edwards, and Cook (2009) further explored the efficacy of the PCIT using single subject methodology replicated across participants. There were four phases in the study. The first phase was a 6-week baseline phase (Phase A); the second phase was a 6-week clinic-based therapy phase (Phase B1); the third phase was a 6-week home-based therapy phase (Phase B2); and the final phase was the follow-up phase that lasted 1-year post clinical therapy (Phase A2). Treatment was described briefly with reference to its format and procedures. There are discrepancies in the reporting of the study. Fourteen participants were reported to begin Phase A but two did not complete Phase A data collection (one in therapy group and one in waiting list condition) and two withdrew from Phase A due to family reasons (one in therapy condition and one in waiting list condition). Four were reported to withdraw from the study during Phase B1 because they were unable to combine the needs of therapy and the
### Chapter 3 Treatment of Early Stuttering

**Table 3.2**  
*A Summary of Early Stuttering Intervention Clinical Trials*

| Study          | Treatment | Research Phase | Participant Sampling         | Outcome Measurements                                                                 | Treatment Fidelity                                                                 | Data Fidelity                                                                                         | Treatment Outcome for Stuttering                      |
|----------------|-----------|----------------|------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Millard et al. (2008) | PCIT     | I              | 9 were recruited and 6 completed the study. | Complied with the minimal recommendations in Table 3.1.                              | Complied with the minimal recommendations in Table 3.1.                              | Second rater was blinded during the analysis. It was not reported whether the second rater was independent from the research. Intrarater agreement was not reported. | Difficult to determine; raw data were not presented.  |
| Millard et al. (2009) | PCIT     | I              | There was inconsistency on the reporting of the number of participants. However, data were presented for 6 (experimental) and 4 (waiting list) participants. | Complied with the minimal recommendations in Table 3.1.                              | Complied with the minimal recommendations in Table 3.1.                              | It was not reported whether the first rater was independent and/or blinded. Second rater was blinded to the analysis but not independent from the research. | Residual stuttering still exists for all participants. |
Table 3.2 continues

*A Summary of Early Stuttering Intervention Clinical Trials*

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Research Phase</th>
<th>Participant Sampling</th>
<th>Outcome Measurements</th>
<th>Treatment Fidelity</th>
<th>Data Fidelity</th>
<th>Treatment Outcome for Stuttering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onslow et al. (1990)</td>
<td>LP</td>
<td>I</td>
<td>4 participated and completed the study.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Satisfactory; All participants maintained clinically significant reductions of stuttering at 9 months posttreatment.</td>
<td></td>
</tr>
<tr>
<td>Onslow et al. (1994)</td>
<td>LP</td>
<td>II</td>
<td>12 out of 18 in the experimental group completed the study. Those in the control group withdrew and opted for treatment.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>The first rater was blind and independent. The second rater was the assessment clinician. Intra- and interrater reliability were satisfactory.</td>
<td>Satisfactory; All 12 participants maintained near-zero levels of stuttering at 12 months posttreatment.</td>
</tr>
</tbody>
</table>
Table 3.2 continues

*A Summary of Early Stuttering Intervention Clinical Trials*

| Study                  | Treatment | Research Phase | Participant Sampling | Outcome Measurements                                                                                     | Treatment Fidelity                                                                                     | Data Fidelity                                                                                          | Treatment Outcome for Stuttering                                                                 |
|------------------------|-----------|----------------|----------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Lincoln and Onslow (1997) | LP        | II             | 43 out of 59 participants recruited completed the study. The remaining did not comply with research requirements. | Complied with the minimal recommendations in Table 3.1, although for 34 participants who completed the study, pretreatment data were unavailable. | Not relevant because this is a follow-up of previous studies. | Main rater was not independent but demonstrated reliability. Both interraters were independent. Reliability results were satisfactory. | Satisfactory; All 43 participants maintained near-zero levels of stuttering at 4 to 7 years posttreatment. |
| Jones et al. (2005)   | LP        | III            | 27 out of 29 in the experimental group and 20 out of the 25 in the control group completed the study. Effect size was reported. | Follow-up period should ideally be 12 months but it was difficult to retain the waiting list control group for more than 9 months. All other minimum requirements were fulfilled. | Complied with the minimal recommendations in Table 3.1. | Complied with the minimal recommendations in Table 3.1. | Satisfactory; Treatment group had 77% reductions of stuttering with mean frequency of 1.5%SS at 9 months postrandomization. |
Table 3.2 continues

**A Summary of Early Stuttering Intervention Clinical Trials**

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Research Phase</th>
<th>Participant Sampling</th>
<th>Outcome Measurements</th>
<th>Treatment Fidelity</th>
<th>Data Fidelity</th>
<th>Treatment Outcome for Stuttering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jones et al. (2008)</td>
<td>LP</td>
<td>II</td>
<td>Data were reported for 20 experimental and 8 control participants. The remaining participants from the Jones et al. (2005) study could not be contacted.</td>
<td>Only one speech sample during a telephone conversation with an unknown clinician was obtained. Ideally, conversational speech with a nonclinician from beyond the clinic should be obtained for a more representative sample. All other minimum requirements were fulfilled.</td>
<td>Not relevant because this is a follow-up of a previous study.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Majority of the participants showed satisfactory results. A minority of the participants relapsed and might need further therapy.</td>
</tr>
</tbody>
</table>
### Chapter 3 Treatment of Early Stuttering

Table 3.2 continues

*A Summary of Early Stuttering Intervention Clinical Trials*

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Research Phase</th>
<th>Participant Sampling</th>
<th>Outcome Measurements</th>
<th>Treatment Fidelity</th>
<th>Data Fidelity</th>
<th>Treatment Outcome for Stuttering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lattermann et al. (2005)</td>
<td>LP</td>
<td>I</td>
<td>4 participated and 3 completed the study.</td>
<td>Although a 1-month pretreatment baseline is ideal, a 2-week pretreatment baseline is acceptable for this study in which the main aim was language progression and not specifically stuttering outcome.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Main rater was the treating clinician whose measurements were verified by another experienced clinician who was blinded to the study. Three randomly selected samples were rescored by independent scorers to obtain interjudge reliability. Interjudge reliability was acceptable.</td>
<td>Satisfactory; Two participants had less than 1% SS and one had less than 1.5% SS at 6 months posttreatment.</td>
</tr>
</tbody>
</table>
## Table 3.2 continues

*A Summary of Early Stuttering Intervention Clinical Trials*

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Research Phase</th>
<th>Participant Sampling</th>
<th>Outcome Measurements</th>
<th>Treatment Fidelity</th>
<th>Data Fidelity</th>
<th>Treatment Outcome for Stuttering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rousseau, Packman, Onslow, Harrison, and Jones (2007)</td>
<td>LP</td>
<td>II</td>
<td>29 out of 34 participants recruited completed the study.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Satisfactory; All participants maintained a mean %SS of 0.3% or less at 24 months posttreatment.</td>
<td></td>
</tr>
<tr>
<td>Miller and Guitar (2009)</td>
<td>LP</td>
<td>II/IV</td>
<td>15 out of 17 recruited completed the study.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Intrarater reliability for pretreatment samples could not be established because the treating clinicians were unavailable. Other minimum requirements were fulfilled.</td>
<td>Satisfactory; 13 out of 15 participants showed less than 1%SS at 12 to 58 months posttreatment. Two continued to have residual stuttering of 3.67%SS and 2.63%SS.</td>
</tr>
</tbody>
</table>
Chapter 3 Treatment of Early Stuttering

Table 3.2 continues

*A Summary of Early Stuttering Intervention Clinical Trials*

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Research Phase</th>
<th>Participant Sampling</th>
<th>Outcome Measurements</th>
<th>Treatment Fidelity</th>
<th>Data Fidelity</th>
<th>Treatment Outcome for Stuttering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harrison et al. (1999)</td>
<td>LP</td>
<td>I</td>
<td>1</td>
<td>A 1-month pretreatment sampling would be ideal to establish the presence of true stuttering rather than a baseline immediately pretreatment because stuttering is known to fluctuate. Other minimum requirements were fulfilled.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Rater was blind and independent. Intrarater agreement was not reported. Interrater was the second author. Interrater results were satisfactory.</td>
<td>Satisfactory; Participant had less than 1% SS at 23 months posttreatment.</td>
</tr>
</tbody>
</table>
### Chapter 3 Treatment of Early Stuttering

#### Table 3.2 continues

**A Summary of Early Stuttering Intervention Clinical Trials**

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment</th>
<th>Research Phase</th>
<th>Participant Sampling</th>
<th>Outcome Measurements</th>
<th>Treatment Fidelity</th>
<th>Data Fidelity</th>
<th>Treatment Outcome for Stuttering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson et al. (2004)</td>
<td>LP</td>
<td>I</td>
<td>5</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Satisfactory; Two participants achieved less than 1%SS and two achieved less than 1.5%SS at 12 months posttreatment. Data for one participant was unavailable due to compliance issues.</td>
</tr>
<tr>
<td>Lewis et al. (2008)</td>
<td>LP</td>
<td>II</td>
<td>37 participants were recruited but 22 completed the study; 9 in the experimental group and 13 in the control group.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>Complied with the minimal recommendations in Table 3.1.</td>
<td>First rater was blind and independent. Second rater was the treating clinician, who was not blinded. Reliability measures were satisfactory.</td>
<td>Majority of the participants who completed Stage 1 showed satisfactory progress. A minority had not completed Stage 1 at the time of the report.</td>
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</table>
demands of data collection. This would mean that data for only six participants were available for report, yet this study reported data of six participants in the treatment condition and four in the waiting list condition. It was also reported that the waiting list condition had to cease part way through the study so that children who took part in the study did not have to wait longer for therapy “due to changes in referral patterns and a reduction in the waiting list time” (p. 65), yet there were data reported for four participants in the waiting list condition for the duration of the study. It was not possible to reconcile these discrepancies. Thus, credibility of the data is reduced. Pretreatment videorecording of parent-child interaction was obtained each week for 6 weeks by the parents from the clinic. Recordings were also collected at 4 ½ months and at 6 months post clinic therapy (after B1) although one might argue that these recordings were made at 3 months and 4 ½ months post therapy, because therapy was administered at home during B2 for a further 6 weeks. All recordings were reported to be from beyond the clinic. Each recording was coded and randomly presented for transcription by a trained research assistant under the first author’s supervision. Thirteen minutes of each 20-min recording were transcribed. It was not reported whether this assistant was independent or blinded to the purpose of the study. The first author who was blind to the original coded transcripts reanalysed one third of the recordings. Interrater reliability was based on agreements and disagreements between raters according to whether words were stuttered or fluent. An agreement of 97.9% was obtained. It was reported that four out of the six children who received therapy showed significant reductions in stuttering frequency (percentage of stuttered words) during therapy phases (B1 and/or B2). However, percentage of stuttered words for these children ranged from 2.7% to 7.6% at the end of the therapy phases and 2.4% to 5.9% at the end of the follow-up phase. The remaining two participants showed no significant reduction in stuttering during therapy phases (B1 and B2) but stuttering frequency showed significant reductions at the end of Phase A2 (2.6% and 3.4% stuttered words). Although these rates were considered a significant reduction, these rates also showed that clinically significant residual stuttering remained after therapy. All 4 participants in the control group showed %SS of more than 2% at the
end of Phase 2. Statistically, three demonstrated no systematic change in stuttering frequency and one had significant reduction in stuttering frequency. A summary of this study is shown in Table 3.2.

From the studies described above, it is clear that the PCIT approach has delivered mixed results. The approach seemed to have benefited some children, although a clinically significant level of stuttering was still present in most children. Thus, this approach might not be as efficacious as reported. In addition, evaluation of efficacy could perhaps be more valid and accurate if the studies evaluated had standardized their stuttering measures using %SS, which is suggested to be a more accurate measurement of stuttering (Lincoln & Packman, 2003).

**The Lidcombe Program**

The *Lidcombe Program* (LP) is a direct behavioural treatment of stuttering based on operant conditioning (see Harrison & Onslow, 2010; Onslow, Packman, & Harrison, 2003; Packman, Webber, Harrison, & Onslow, 2008). Development of the LP was not driven by any theoretical perspective on the nature or cause of stuttering. It was developed for children under 6 years of age.

The basic goal of the LP is to achieve stutter-free or near-zero stuttering levels that endure 1 year or more after it is achieved (Harrison & Onslow, 2010). Treatment is mainly conducted by parents. The role of the parent is to do the treatment in the child’s everyday environment, and the role of the clinician is to teach the parent to do the treatment. The only time the clinician does the treatment is to demonstrate it for the purposes of teaching parents. As such, generalization of treatment effects is usually not an issue, as treatment begins as soon as possible in the child’s natural environment.

The main treatment agent in the LP is the parental verbal contingencies (VCs) for stutter-free and stuttered speech. Parental VCs mean that, after stutter-free or stuttered speech occurs, parents say certain things. There are three contingencies that a parent can provide for a child’s stutter-free speech: (a) acknowledgement, (b) praise, and (c) a request for a self-evaluation. For unambiguous stuttering, the parent can provide two
types of contingencies: (a) acknowledgement, and (b) a request for self correction. Parents are taught how to provide the contingencies first in structured conversations, then gradually in unstructured conversations.

Two measures of stuttering are used in the LP: (a) stuttering rate that is measured in percentage of syllables stuttered (%SS), and (b) severity rating (SR), which is a perceptual rating scale from 1 to 10, in which 1 is no stuttering and 10 is extremely severe stuttering. Parents are taught how to rate their child’s stuttering using the SR and report the daily ratings of the previous week to the clinician at each clinic visit.

There are two stages in the LP. In Stage 1, the goal is for the child to achieve less than 1.0 %SS of stuttering and SRs of mostly 1s and an occasional 2. In Stage 1, clinic sessions are conducted on a weekly basis. During the early visits, parents learn how to provide VCs in structured conversations. These contingencies and conversations are also carried out at home for at least 10 to 15 minutes every day. When a decrease in SRs is noted, parents then learn how to provide VCs in unstructured conversations that occur in daily situations. Over time, as SRs continue to decrease, treatment occurs more frequently in unstructured conversations and is gradually lessened during structured conversations.

If a child has maintained weekly SRs of mostly 1s and some 2s, for 3 consecutive weeks, the child can enter Stage 2. This is the maintenance stage. In Stage 2, clinic visits are gradually scheduled to be further apart. For example, the first two visits might be 2 weeks apart, followed by two visits at 4 weeks apart, then another two at 8 weeks apart, and the final visit 16 weeks later. Progress through this sequence can be stalled if the child fails to achieve the speech criterion of weekly SRs of mostly 1s and less than 1.0 %SS in the clinic. In Stage 2, nearly all treatment occurs in unstructured conversations. As the child progresses through Stage 2, parental VCs are gradually withdrawn.

**Efficacy of the Lidcombe Program**

There is a body of literature that provides evidence that the LP is an efficacious and safe treatment. Harrison and Onslow (2010) have described the empirical evidence in support of the LP in two categories: (a) clinical trials (as defined by Onslow et al., 2008)
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in treatment efficacy research, and (b) treatment process research that includes clinical cohort studies, research on measurement procedures, safety and viability, experimental studies on the LP components, and research on the LP’s underlying mechanism. Some clinical trials are also treatment process research (e.g., Onslow et al., 1990; Rousseau et al., 2007) and thus, also reported measures of other variables, such as language and phonology development. However, in evaluating efficacy, stuttering frequency in %SS will be evaluated as the main focus of treatment outcome in each of the clinical trials. Table 3.3 displays a list of the LP studies that were categorized as clinical trials in treatment efficacy research (Harrison & Onslow, 2010; Onslow et al., 2008) for preschoolers who stutter. For other LP studies of treatment process, see Harrison and Onslow (2010).

Table 3.3

*Lidcombe Program Clinical Trials and Research Phases for Each Trial*

<table>
<thead>
<tr>
<th>Study</th>
<th>Research Phase</th>
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<tr>
<td>Onslow et al. (1990)</td>
<td>I</td>
</tr>
<tr>
<td>Onslow, Andrews, and Lincoln (1994)</td>
<td>II</td>
</tr>
<tr>
<td>Lincoln and Onslow (1997)</td>
<td>II</td>
</tr>
<tr>
<td>Jones et al. (2005)</td>
<td>III</td>
</tr>
<tr>
<td>Lattermann, Shenker, and Thordardottir (2005)</td>
<td>I</td>
</tr>
<tr>
<td>Rousseau et al. (2007)</td>
<td>II</td>
</tr>
<tr>
<td>Jones et al. (2008)</td>
<td>Follow-up of Jones et al. (2005)</td>
</tr>
<tr>
<td>Miller and Guitar (2009)</td>
<td>II</td>
</tr>
<tr>
<td>Harrison, Wilson, and Onslow (1999)</td>
<td>I</td>
</tr>
<tr>
<td>Wilson, Onslow, and Lincoln (2004)</td>
<td>I</td>
</tr>
<tr>
<td>Lewis et al. (2008)</td>
<td>II</td>
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Onslow et al. (1990) provided the earliest preliminary data through a Phase I clinical trial with four preschool children ranging in age from 3 years 2 months to 5 years
3 months. Three were boys and one was a girl. The treatment protocol was clearly reported. Speech recordings were obtained at 2 months, 1 month and 1 day pretreatment, and at 1 day, 1 month, 2 months, 4 months, 6 months and 9 months post-Stage 1. During each collection point, recordings were obtained from four conversational speaking situations: (a) within clinic, (b) beyond-clinic at home, (c) beyond-clinic away from home, and (d) covert recordings. Each sample was 10 minutes in duration. Samples were randomly ordered and given to two raters who were both independent of the research. Sixteen (15%) of the total samples were subjected to reliability analyses. Intrarater and interrater reliability were satisfactory: First and second ratings were expressed in terms of differences in scores between the two ratings. For intrarater reliability, 14 samples were within 0 to 0.5 %SS of the original scores, and 2 were within 0.6 to 1.0 %SS. The Pearson \( r \) correlation between the first and second ratings was 0.99. For interrater reliability, 4 samples differed by 0 to 0.5 %SS, 6 differed by 0.6 to 1.0 %SS, 3 differed by 1.1 to 1.5 %SS, 0 differed by 1.6 to 2.0 %SS, 2 differed by 2.1 to 2.5 %SS, and 1 differed by 2.6 to 3.0 %SS. The Pearson \( r \) correlation between the %SS scores of the first rating clinician and the second rating clinician was 0.96. Pretreatment stuttering frequency ranged from 0 %SS in one sample (maximum %SS from this subject was almost 6%) to approximately 16 %SS. At 9 months post-Stage 1, each subject’s stuttering frequency was reduced to a range of 0 to 2 %SS. A summary of this study is shown in Table 3.2.

These preliminary findings were expanded upon in a Phase II clinical trial by Onslow, Andrews, and Lincoln (1994) in which the authors attempted to have a control group, to study the effects of the LP against the effects of natural recovery. However, the majority of the parents withdrew their children from the control group and opted to have them treated, rather than having treatment withheld. Eighteen were recruited for the experimental group but five withdrew due to family reasons and one did not complete data collection. In effect, then, the study showed results of an outcome study of 12 children who were treated successfully. Four were girls and eight were boys. Mean and median ages were 3 years 7 months and 3 years 6 months respectively with a range of 2 years 4 months to 4 years 10 months. The treatment protocol was clearly reported.
Speech recordings were obtained over three pretreatment occasions (2 months, 1 month, 1 week pretreatment) and seven post-Stage 1 occasions (1 week, 1 month, 2 months, 4 months, 6 months, 9 months, and 12 months post-Stage 1). During each collection point, recordings were obtained from three beyond-clinic situations: (a) home, (b) away from home, and (c) covert recordings. Each sample was at least 200 syllables or more, or 1 minute or more of accumulated speaking time. The first rater was a blind and independent clinician and the second rater was the assessment clinician. Intra- and interrater reliability were satisfactory: Scores gathered by the assessment clinician were plotted against the scores gathered by the reliability clinician for selected speech samples for each subject. With the exception of one subject, the downward pretreatment-posttreatment data trends identified by the assessment clinician were verified by the reliability clinician. Mean pretreatment %SS in each of the three beyond-clinic situations for all participants ranged from 3 to 6 % and medians ranged from 2 to 4 %SS. At 12 months post-Stage 1, mean and median %SS were at near-zero levels in each of the situations. A summary of this study is shown in Table 3.2.

In a Phase II long-term follow-up study, Lincoln and Onslow (1997) investigated treatment outcomes of 43 children who had received the LP between the ages of 2 to 5 years. Fifty nine were originally recruited but 16 failed to comply with research requirements. Two children who participated were participants from the Onslow et al. (1990) study and seven were from the Onslow et al. (Onslow et al., 1994) study. The remaining 34 were additional and had not participated in any treatment outcome research before. For the additional participants, pretreatment speech recordings were obtained only for clinical purposes but not retained for research purposes. However, it was reported that detailed clinical records suggested that pretreatment stuttering severity for these children was not different from the nine children in the two previous studies. Speech recordings were obtained yearly for three consecutive years for a period of 1 year to 7 years posttreatment (depending on each participant’s posttreatment stage). During each collection point, recordings were obtained from three beyond-clinic situations: (a) with a family member at home, (b) with a nonfamily away from home, and (c) covert recordings with a family member. Each recording was at least 10 minutes in duration for each
situation. The main rater was the first author who established reliability on ten samples before proceeding to rate the remaining samples. Interraters were reported to be two independent clinicians experienced in treating stuttering. Reliability results were satisfactory: The author’s measures were reported to agree closely with the two clinicians, with 91% of these measures being within 1 %SS. Results suggested that, at 4 to 7 years posttreatment, mean and median %SS remained at near-zero levels in all three speaking situations. A summary of this study is shown in Table 3.2.

Jones et al. (2005) evaluated the efficacy of the LP by comparison to a control group in a Phase III randomized controlled trial. Fifty four participants were recruited from two public speech clinics in Auckland and Christchurch, New Zealand. These participants were randomized: 29 to the LP and 25 to the control group. Twenty seven in the LP and 20 in the control group completed the study. Those who did not complete withdrew for reasons such as major illness in the case of one child, and because families were not contactable, mainly because of relocation. The treatment protocol was briefly reported with reference to the LP manual (available from the Australian Stuttering Research Centre website). Speech recordings were obtained before randomization and at 3, 6, and 9 months postrandomization. During each collection point, recordings were obtained from three beyond-clinic situations: (a) with a family member at home, (b) with a nonfamily at home, and (c) with a nonfamily member away from home. The recordings collected had a mean duration of 433 syllables. One observer assessed all recordings from the Auckland clinic and another from the Christchurch clinic. These observers were blinded and independent of the research. Intra- and interjudge reliability were assessed on a 5% sample of recordings from both clinics. Intraclass correlations for both intra- and interjudge reliability were good ($r = 0.99$). Results obtained showed that, at 9 months postrandomization, the treatment group had reduced their stuttering by 77%, resulting in a mean frequency of 1.5 %SS. The control group had reduced their frequency of stuttering by an average of 43%, resulting in a mean stuttering frequency of 3.9 %SS. The mean differences resulted in an effect size of 2.3 %SS, doubling the minimum clinical worthwhile difference specified in the trial protocol, and supporting the positive short-
term effects of the LP as compared to natural recovery. A summary of this study is shown in Table 3.2.

In a follow-up study of the Jones et al. (2005), Jones et al. (2008) investigated longer term outcomes for some of the participants in the 2005 study. Twenty of the 29 children in the treatment group and eight of the 25 children in the control group were able to be contacted. At the time of this follow-up, the children were aged between 7 to 12 years and 3.5 to 7 years post-randomization in the 2005 study. One speech sample of a telephone conversation was obtained and assessed by an experienced clinician who was not involved in the 2005 study. A second clinician, who was experienced, independent, and blinded to all aspects of the study, measured %SS of the recorded speech samples, which were presented in random order. All but one sample contained at least 400 syllables. Interjudge reliability was acceptable: The Pearson correlation between the two sets of %SS scores was 0.97, with a mean difference of 0.1 %SS between scores. Results showed that 16 of the 20 children contacted were not stuttering or had very low frequency of stuttering (0–1.1 %SS). Three children who had completed the LP had relapsed with %SS of 1.4, 7.0, and 14.8. One who did not complete the LP had stuttering frequency of 2.5 %SS. Of the eight control participants, five recovered naturally, with stuttering frequencies that ranged from 0 to 0.5 %SS. Two had since completed the LP successfully and had stuttering frequencies of 0 %SS. One was receiving the LP at the time of this follow-up and had a stuttering frequency of 12.3 %SS. Results from this follow-up showed that the majority of the participants who received the LP were able to maintain near-zero levels of stuttering for up to 7 years. However, a minority did relapse and therapy needed to resume. Unfortunately, this study was not able to provide data for sufficient number of control participants. Thus, a comparison of the LP’s long term benefit compared with natural recovery cannot be determined. A summary of this study is given in Table 3.2.

Latterman et al. (2005) provided treatment outcomes while investigating progression of language complexity of four preschool boys who were administered the LP in a Phase I clinical trial. These participants’ ages ranged from 4 years 1 month to 5 years 11 months. The LP was administered by an experienced SLP. Speech recordings of
100 utterances were obtained in the clinic 2 weeks pretreatment, at 1, 4, 8, and 12 weeks into treatment, and at 6 months post-Stage 1. Stuttering frequency was measured by the treating clinician and verified by another experienced clinician who was blinded to the study. Three randomly selected samples were rescored by independent scorers to obtain interjudge reliability. Reliability was calculated as a percentage on a point-by-point basis using the following formula: (number of agreements/ number of agreements + number of disagreements) x 100. Interjudge reliability was acceptable. The interjudge agreement for type of disfluencies was 95.5% and for stuttering frequency was 100%. All the participants except one completed the LP. This participant’s mother terminated the treatment prematurely against the clinician’s advice. Two participants who completed the LP had pretreatment %SS of more than 20% and approximately 7% respectively but achieved less than 1% at 6 months post-Stage 1. One who completed the LP had approximately 6 %SS pretreatment and less than 1.5 %SS at 6 months post-Stage 1. The one participant who did not complete the LP had approximately 6 %SS pretreatment and 5 %SS at 6 months post-Stage 1. A summary of this study is shown in Table 3.2.

Rousseau et al. (2007) also provided results of treatment outcomes while investigating language and phonological development as predictors of treatment time with the LP in a Phase II clinical trial. Thirty four participants, aged 3 to 6 years, were recruited but only 29 completed Stage 1 of the LP. Of the five participants who did not complete the LP, one withdrew due to lack of progress, whereas the rest withdrew due to other personal and family problems (see Rousseau et al., 2007, p. 391). The 29 participants were treated by the first author according to the treatment manual with regular clinical observations by the LP developers. Speech recordings were obtained over two assessments over a 2 to 4 week pretreatment period, at the start of Stage 1, at the end of Stage 1, and at 6, 12, and 24 months post-Stage 1. At each of these seven data collection points, speech recordings were collected at home, away from home with a familiar adult and within the clinic. Mean number of syllables for the speech samples were 581 and 715 pre- and post-Stage 1, respectively. All recordings were randomized and presented blind to independent observers. Overall, intra- and interjudge reliability were trustworthy. Pearson correlation for intrajudge was 0.95 and 0.82 for interjudge.
Ninety eight percent of the intrajudge agreement were within 2.0% SS and 95% of the interjudge agreement were within 3.0% SS. Mean %SS pretreatment for the participants ranged from 2.4 to 3.5% at the pretreatment data points and at each speech sampling situation, compared to a mean %SS at 24 months post-Stage 1 of 0.3% or less. A summary of this study is shown in Table 3.2.

In a Phase II study, Miller and Guitar (2009) reported long term follow-up data for 15 preschoolers treated with the LP by three clinicians. Seventeen participants were originally enrolled but one parent withdrew because of the belief that the child would recover naturally and another could not be contacted during follow-up. The three clinicians who administered the LP were inexperienced with the LP but had attended a 2-day LP workshop. Four of the participants were female and 11 were male with an age range of 2 years 5 months to 5 years 9 months (mean = 3 years 9 months). Pretreatment %SS and scores on Stuttering Severity Instrument for Children and Adults, Third Edition (SSI-3; Riley, 1994) were taken from file records. These measures were made from speech recordings within clinic and obtained by the treating clinicians before the start of the treatment. Only four of the original recordings were still available and were used for interrater reliability. Intrarater reliability could not be established because the treating clinicians were unavailable. The remaining four recordings were remeasured by an independent observer who was blinded to the purpose of the study. Interrater reliability was satisfactory. The differences in %SS between both ratings averaged 2.3%. Posttreatment measurements were made by the first author and an independent observer who was blinded to the purpose of the study. Posttreatment recordings were made beyond the clinic 12 to 58 months after Stage 2. Beyond-clinic recordings included conversational speech between the child with a parent and between the child and an unfamiliar person. Intrarater and interrater reliability were excellent: It was reported that there were no differences in %SS between ratings for both intra- and interrater reliability. A pairwise t test indicated a significant difference between the original %SS and follow-up %SS. All pretreatment and posttreatment recordings had an average of 300 syllables each. Mean pretreatment %SS for all 15 participants was 12.6 (SD = 7.38, range = 5.9-24% SS) and mean at follow-up was 0.5 (SD = 1.1, range = 0-3.7% SS). Thirteen out of 15
participants had less than 1 %SS at posttreatment measurement occasions. The remaining two had 3.67 %SS and 2.63 %SS respectively. This study demonstrated that clinicians who were inexperienced with the LP could achieve success similar to that of experienced clinicians. As Bloodstein and Bernstein Ratner (2008) emphasized, a treatment can be considered successful when the method can be shown “to be effective in the hands of essentially any qualified clinician, including those without unusual status, prestige, or force of personality” (p. 343). Thus, this study provides the first clinical trial evidence that the LP is not only efficacious but is also an effective treatment for preschool children who stutter. A summary of this study is shown in Table 3.2.

Three studies have also demonstrated that the LP can be carried out via telehealth delivery (i.e., Harrison et al., 1999; Lewis et al., 2008; Wilson et al., 2004). In this telehealth version, the LP’s weekly clinical visits were replaced by scheduled telephone conversations, and online measurements of the children’s speech at each clinical visit were replaced by frequent recordings of speech samples from home that were sent to the clinician (see Harrison et al., 1999; Lewis et al., 2008; Wilson et al., 2004).

In a Phase I clinical trial, Harrison et al. (1999) reported data on a single case, a 5-year-10-month old boy who had been stuttering severely for nearly 4 years. The participant was treated by the first author. Three speech measures were made immediately pretreatment, two at 12 months post-Stage 1, one at 19 months post-Stage 1, and two at 23 months post-Stage 1. Each sample was from beyond the clinic in various speaking situations. These speech samples were presented to an observer who was independent and blinded to the study. Interrater agreement was satisfactory. With the exception of one pretreatment sample, which had a 2.5 %SS difference between ratings, all other pretreatment and posttreatment samples were within 0.1 to 0.5 %SS. Intrarater agreement was not reported. Results obtained showed that pretreatment %SS ranged from 9.9% to 18.2 %SS. At 23 months post-Stage 1, %SS was less than 1% for all measurement occasions. A summary of this study is shown in Table 3.2.

In a subsequent Phase I trial of telehealth delivery of the LP, Wilson et al. (2004) reported treatment outcome for five preschoolers ranging from 3 years 5 months to 5 years 7 months old. Three participants were girls and two were boys. Speech samples
were obtained at 2 months, 1 month and 1 week pretreatment, and at 1 week, 1 month, 2, 4, 6, 8, and 12 months post-Stage 1. At each sampling occasion, each participant’s speech was recorded for 10 minutes in three speaking situations: (a) speaking to a family member at home, (b) speaking to a nonfamily or family member away from home, and (c) covert recordings in a variety of speaking situations at home. Speech samples were presented randomly to two independent observers. Reliability measures were satisfactory. The correlation coefficient between %SS scores for both observers was 0.97. Pretreatment %SS ranged from 1.3 to 19.8. At 12 months post-Stage 1, two participants achieved less than 1 %SS and two achieved less than 1.5 %SS. Data for one participant was unavailable due to compliance issues. The two participants who achieved less than 1.5 %SS had pretreatment %SS measures ranging from 3.9 to 10.1 and 16.2 to 19.8 respectively. A summary of this study is shown in Table 3.2.

In a Phase II trial of telehealth delivery of the LP, Lewis et al. (2008) reported data on 22 participants who were randomized: 9 to the experimental group and 13 to the control group. Thirty seven were originally recruited but 15 withdrew from participation due to reasons such as stuttering had ceased for 7 children, 5 parents obtained stuttering treatments somewhere else, one parent could not commit to research demands, one parent could not be contacted and one withdrew without reason. Ages of the 22 children who participated ranged from 3 to 6 years old. Speech samples were obtained 1 week before randomization and 9 months postrandomization. Speech samples were also obtained for each child in the experimental group 12 months post-Stage 1. For the children in the control group who subsequently received treatment, speech samples were obtained at 18 months postrandomization. During each sampling occasion, each participant’s speech was recorded for 10 minutes in three speaking situations: (a) at home, (b) away from home, and (c) covert recording. The entire data set was given to a clinician who was independent and blinded to the purpose of the study. These measures were compared to the measures made by the treating clinician, who was not blinded. Reliability measures were satisfactory. Correlation between the two sets of ratings was 0.96. A paired t test showed no significant difference between the means (2.2 and 2.3) of the two sets of ratings. One participant in the experimental group was lost to follow-up at 9 months.
postrandomization due to the parent’s failure to comply with study requirements. Two participants in the control group were lost to follow-up at 9 months postrandomization for the same reason and one was lost because the parent could not be contacted. Thus, data was reported for 8 participants in the experimental group and 10 in the control group. Although raw data for the experimental participants was not reported, mean %SS for six participants in the experimental group at 9 months postrandomization and at 12 months post-Stage 1 was less than 1%. These were categorized as “responders,” who fulfilled the criterion of more than 80% decrease in %SS scores at 9 months postrandomization. Two participants were categorized as “nonresponders” and had not completed Stage 1 at 9 months postrandomization. These two participants had a decrease in %SS of less than 40% at 9 months postrandomization. Although all control children were offered the same telehealth treatment at 9 months postrandomization, only seven parents accepted the offer. At that time, %SS for these seven participants ranged from 0.4% to 4.1%. At 18 months postrandomization, four had completed Stage 1 and all %SS measures were less than 1%. Three had not completed Stage 1 at 18 months postrandomization: Mean %SS measures were 1.3, 0.5, and 1.5% respectively. A summary of this study is shown in Table 3.2.

From Table 3.2, it is clear that the LP is the only early stuttering intervention that provides evidence of efficacy and effectiveness at most phases of a clinical trial. As stated earlier, no one study is perfect, but most of these studies have endeavoured to provide results that are reliable and credible. It can be seen that, although treatments based on the DCM are popular and widely used, there is as yet no clinical trial to demonstrate its efficacy. None of the studies of the PCIT and the LP provided perfect outcome results, but it is undeniable that the majority of the children treated with the LP showed remarkable progress and that the LP, of the three treatment approaches reviewed, has the best and most extensive evidence. Indeed, the LP has the best research evidence of an early stuttering intervention (Guitar & McCauley, 2010). Treatment process research of the LP has also shown that it is a safe treatment for preschool children (Woods, Shearsby, Onslow, & Burnham, 2002).
The developers of the LP do not yet know why the program is efficacious or effective in reducing or eliminating stuttering (Onslow, 2003b). Some preliminary results in a study by Harrison, Onslow, and Menzies (2004) indicated that parental VCs for stuttering contributed to the outcomes. The VModel (Packman & Lincoln, 1996) provided an explanation suggesting that the LP is effective because it focuses on speech and so encourages children to adjust to the demands of variable syllabic stress. It was also suggested that, by correcting stuttering and praising stutter-free speech, parents convey the message “don’t do it this way, do it this way,” and so children adjust speech motor functioning in a way that works for them. If this occurs when a child’s nervous system is still plastic, these adjustments become automatic and part of the child’s typical way of speaking. This is consistent with the recent Syllable Initiation theory (Packman et al., 2007) in that it was proposed that the LP is efficacious because it urges children to make adjustments to their underlying neural processing patterns during a period when their motor speech development is still plastic. Nevertheless, despite the mystery of why the atheoretical LP is efficacious, the studies reviewed clearly provide good quality evidence that the LP is an efficacious and effective treatment for early stuttering.

As can be seen from the literature review of the three approaches above, the PCIT is the most indirect approach, focusing on changing parental behaviours to influence speech. Treatments based on the DCM incorporate a mixture of direct and indirect approaches that involve changing parental behaviours and also changing child’s behaviour. The PCIT and treatments based on the DCM both originated from the belief that stuttering is multifactorial. The LP, on the other hand, is clearly a direct approach, focusing on the child’s speech, and did not stem from any theoretical framework. Despite this, it has been established to have the best evidence for early stuttering.
Selection of Treatment for This Study

The main aim of this research program is to introduce an early stuttering intervention to Malaysia. Evidence-based early stuttering intervention is an area that has received little attention in Malaysian speech-language pathology. Most Malaysian clinicians either do not treat early stuttering cases (preferring to wait and see) or are using assertion-based methods in the treatment of early stuttering. As discussed in earlier sections, it is important to effectively treat stuttering in the early years because of the negative consequences if it is left untreated. Furthermore, in providing treatment, it is important to use evidence-based methods as opposed to assertion-based methods. This highlights the importance of this research: It will provide a foundation for using evidence-based methods to treat early stuttering in Malaysia.

In a series of publication on evidence-based practice (see Bothe, 2003; Finn, 2003; Ingham, 2003; Langevin & Kully, 2003; Onslow, 2003a), it is concluded that there is no such thing as the best treatment. Although different in their treatment focus, all three approaches share similar components, in that parents form an integral component of intervention, praise by parents included to a certain extent, intervention includes one-to-one-time, and progress is systematically followed (Guitar & McCauley, 2010). All three approaches were developed within the Western culture. Therefore, the best that a clinician can do is to choose a treatment that shows the best evidence of success. It is clear from the review presented that the LP is the most extensively researched early intervention for stuttering, with strong evidence of treatment effectiveness and efficacy. This is why the LP was chosen as the early intervention for stuttering to be introduced to the Malaysian population.

Despite having the best available evidence, applicability of the LP within the Malaysian context needs to be considered. This is because there exists a possibility that the LP might not work in a society like Malaysia because it was originally developed in a culture different from Malaysian culture. In the following section, some issues pertaining
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to stuttering in Malaysia are highlighted before discussing the congruence of the LP with the Malaysian context. This will enable the reader to have a better perspective of the development of the stuttering area in Malaysia. Some of the issues that need to be considered are: (a) prevalence and incidence of stuttering in Malaysia and (b) the timing of early intervention. Each of these will be addressed in turn.

**Stuttering in the Malaysian Context**

As stated in Chapter 1, there are no published data regarding prevalence and incidence of stuttering in Malaysia, nor specifically of early stuttering. In Chapter 1 (see section Prevalence and Incidence), it has been established that prevalence elsewhere is approximately 1%, with higher rates in the preschool population. Incidence is established to be approximately 5%, although recent research suggests higher rates in the preschool population (e.g., Reilly et al., 2009). As such, prevalence and incidence of early stuttering in Malaysia should not be underestimated, and cases that warrant treatment do present in the clinics and hospitals.

Because of its history and its current education system, most, if not all, Malaysians speak at least two languages or more. There is a widespread belief that stuttering is more prevalent in bilingual people than in monolingual people (Karniol, 1992; Van Borsel, Maes, & Foulon, 2001). In an early survey of 4,827 children aged 4 to 17 years by Travis, Johnson, and Shover (1937), a higher prevalence rate of stuttering was reported in bilingual children (2.8%) compared to monolingual children (1.8%). However, population sampling was limited to East Chicago public schools. Thus, generalization of these data is limited. The possibility also exists that stuttering identification may not have been valid, as interpreters (for non-English speaking subjects) who were not trained in stuttering were used to determine the presence of stuttering.

In a more recent Internet survey on stuttering and bilingualism, 749 responses were received from 40 countries (Au-Yeung, Howell, Davis, Charles, & Sackin, 2000). Invitations were sent out to groups of people and messages inviting participation were
posted on various bulletin boards on the Internet. The website of the survey could also be reached through search engines using the keywords *stuttering* and/or *bilingual*. It was reported that there is no difference between bilingual (21.7%) and monolingual (21.7%) speakers in term of their likelihood of having stuttered in their life. However, it was acknowledged that this Internet survey could represent a biased sample, as participants were mostly from Western countries and mostly female. Participant sampling would also be limited to those who had access to Internet services.

Due to methodological weaknesses of the available studies, it cannot be concluded that stuttering is more prevalent in bilingual than monolingual people. Thus, it also cannot be concluded that stuttering is more prevalent in a multilingual society like Malaysia.

*Timing of Early Intervention*

From personal experience and discussion with other Malaysian SLPs, there are many reasons why early stuttering intervention is not common in Malaysia. One of the reasons is that most SLPs believe that intervention can successfully be provided at a later age. This is in spite of the fact that recent literature shows that stuttering should be treated in the early years (see Chapter 2). Some SLPs practice assertion-based methods, mostly indirect treatment approaches such as parent counseling, although treatment outcomes have never been documented.

Another reason early intervention of stuttering is uncommon is because some parents do not think stuttering is a problem in young children and often assume that young children will outgrow it. Most parents also do not know that early stuttering can and should be treated in the preschool years. Therefore, they do not refer their children for intervention. On the other hand, those who are concerned about their child’s stuttering do not know where or how to seek help. This could be due to the fact that a lot of areas in Malaysia still lack availability of speech language services.

Not treating stuttering in the early years has resulted in more adults visiting clinics for stuttering problems. Most report that they have stuttered since they were
young, mostly before 6 years of age, but were never taken for stuttering therapy. This is supported by the fact that speech-language pathology itself is a relatively underdeveloped area. Speech and language services were first introduced in Malaysia in the 1960s through the Volunteer Service Organization (a British organization) and the American Peace Corps (Lian & Abdullah, 2001). In 2000, there were 15 SLPs and 2 audiologists registered under the Malaysia Association of Speech-Language and Hearing (MASH), a professional body representing speech-language pathology and audiology (Lian & Abdullah, 2001). Thus, it was highly likely that speech language therapy was barely in existence or rare before the 1990s. In 1994, the National University of Malaysia (UKM) became the first educational institution to grant a degree in speech-language pathology and in 1999, graduated its first cohort of nine students (Lian & Abdullah, 2001). By 2005, a total of 81 locally trained SLPs graduated from the program (Van Dort, 2005).

Lian and Abdullah (2001) also noted that referrals for speech-language pathology services occur later, due to later identification and access to services. Clinical caseloads frequently consist of school-aged children who have hearing loss, delayed language development, behavioural disorders and developmental disabilities. Clients are often referred to an SLP by other health professionals, school teachers and parent support groups. Occasionally, clients are referred by medical personnel or nonprofit organization such as the National Stroke Association and the National Cancer Society.

Despite the shortage of SLPs and limited clinical services (Lian & Abdullah, 2001), speech-language pathology continues to grow in Malaysia, and stuttering is slowly emerging as a speech disorder that can and should be treated. However, many SLPs continue to grapple with the question about what is the current efficacious treatment and how best to implement such treatment in a multicultural and multilingual society such as Malaysia. This highlights the need to explore stuttering treatment in Malaysia. The focus of this thesis, the introduction of the LP of Early Stuttering Intervention to Malaysia, will serve as a stepping stone towards the development of stuttering treatment in Malaysia.
The Congruence of the Lidcombe Program with the Malaysian Context

The LP was developed based on the Australian culture and is mainly conducted by parents using VCs such as praising and acknowledging. Thus, parenting practices are a crucial part of the implementation of the LP. The LP has been introduced in many countries around the world, such as the United Kingdom (see Hayhow, Kingston, & Ledzion, 2003), Canada (see Shenker & Wilding, 2003), New Zealand (see Jones, Blakeley, & Ormond, 2003), and South Africa (see Wahlhaus, Girson, & Levy, 2003), and its use has been documented in Iran (e.g., Bakhtiar & Packman, 2009) and Germany (e.g., Lattermann et al., 2008). However, there is as yet no documentation of its use in Malaysia.

According to Bernal (2006), therapy is more effective when it is congruent with the culture and context of the patient or client population. If the LP is to be successfully implemented effectively in Malaysia, it is important that its congruence with the multicultural Malaysian society be considered. There is a possibility that the LP may not be congruent with Malaysian society that might have different parenting practices from those in other countries where the LP had been implemented before. This highlights a very important issue in this study: Will the LP be accepted in the Malaysian context? The first two studies of this research were designed to investigate this question.

Study 1 investigated Malaysian parents’ use of positive reinforcement, particularly in regards to VCs. It was hypothesized that praising and acknowledging might not be a common practice among Malaysian families and that the LP might not be congruent with Malaysian parenting practices. If this was found to be the case, the LP might need to be adapted to suit Malaysian families. Results obtained in this study provide preliminary information upon which an adaptation of the LP for Malaysian families could be based. This study is presented in Chapter 4.

Study 2 investigated Malaysian parents’ responses and reactions to the LP approach. Results obtained from this study supplemented the information obtained from Study 1, to provide preliminary information of how the LP is likely to be accepted by
Malaysian parents and/or how it could be adapted, if necessary, for Malaysian families. This study is presented in Chapter 5.
CHAPTER 4
MALAYSIAN PARENTS’ USE OF POSITIVE REINFORCEMENT: IMPLICATIONS FOR THE LIDCOMBE PROGRAM

Abstract

The practice of verbal praising forms an important treatment component in an early stuttering intervention known as the Lidcombe Program (LP). However, praising is a practice that differs from culture to culture (Lattermann et al., 2008; Shenker & Wilding, 2003) indicating that there may be a need of adapting this component for Malaysian families. The purpose of this study, therefore, was to describe the use of positive reinforcement by a small number of Malaysian parents, with a view to determining whether adaptation of the LP for use with Malaysian families is necessary. The participants in this study consisted of six dyads of parent-preschool child who were randomly chosen from a stratified sample of 20 Malaysian parent-child dyads. These participants were videorecorded during two table tasks. The interactions were transcribed and analyzed using a coding system modified from various studies for the purpose of the study. Results showed that all parents except one verbally praised their children’s behaviours during the tasks. However, frequency of praise was relatively low compared to other type of responses, and expressions of praise were limited. Implications for the LP are discussed.

1 This chapter is based on an article published in the Asia Pacific Journal of Speech, Language, and Hearing, Volume 13, Number 2, for June 2010, with permission from the editor. Additional information on a rating scale which was omitted from the journal due to word limitation, and minor editorial and other changes to conform with thesis requirements were made. The published version was written by the candidate as the first author and coauthored with Linda Wilson, Lindy McAllister and Michelle Lincoln. The candidate was the chief investigator in the study described.
Introduction

Consequences, either reinforcement (reward) or punishment, are contingent on an organism’s behaviour (Santrock, 2001). Reinforcement is a consequence that increases the probability that a behaviour will occur again. Positive reinforcement is usually pleasant such as when a teacher’s positive comments or praise increases the student’s writing behaviour but it also can be unpleasant (as when students do work they do not want to do in order to get a good grade). In negative reinforcement, the frequency of a response increases because the response removes an unpleasant stimulus, such as when a son who is tired of his mother’s nagging cleans up his room to remove the unpleasant stimulus of the mother’s nagging. In contrast, punishment is a consequence that decreases the probability a behaviour will occur. The use of consequences is the core of an early stuttering intervention known as the LP. In the LP, consequences refer to positive verbal contingencies (VCs) that consist of praise, acknowledgment, and request for self-evaluation of a child’s stutter-free speech, and negative VCs, which consist of acknowledgment and request for self-correction of a child’s stuttered speech.

In Malaysia, there has been no research as yet about the efficacy of any particular approach to early stuttering intervention. The literature provides good quality evidence that the LP is the best available treatment for early stuttering (see Harris et al., 2002; Lincoln & Onslow, 1997; Onslow et al., 1994). Theoretically, the introduction of the LP would open a new window in the field of stuttering treatment in Malaysia.

According to Bernal (2006), therapy is more effective when it is congruent with the culture and context of the patient or client population. However, the LP was developed within the Australian culture, with additional research conducted in other countries (e.g., Franken et al., 2005; Hayhow, 2006; Shenker & Roberts, 2006). In spite of its wide usage, it may not be congruent with the multicultural aspects of Malaysian society. This is because Malaysia is made up of a complex mix of different cultures and religions, with perhaps different parenting practices from those cultures in which the LP had been implemented. As the LP is mainly conducted by parents using parental VCs
such as praising and acknowledging stutter-free speech, parenting practices may play a crucial role in the implementation of the LP.

**Parenting Practices**

Parenting practices are situation-specific, goal-directed behaviours through which parents perform their parental duties (Brenner & Fox, 1999; Stewart & Bond, 2002). These behaviours take place within defined and limited contexts, and may have different meanings to different cultures (Stewart & Bond, 2002). Parenting practices are different from parenting styles. Parenting style is defined as a stable complex set of attitudes and beliefs that form the context in which parenting behaviours occur (Darling & Steinberg, 1993). Baumrind’s (1967) typologies of parenting styles have served as the template for many studies on parenting. Her early work identified three parenting styles: (a) authoritarian, which consists of parents who are punitive and focus on gaining a child’s obedience to parental demands rather than responding to the demands of the child; (b) permissive, which consists of parents who are more responsive to their children but do not set appropriate limits on their behaviour; and (c) authoritative, which consists of parents who are flexible and responsive to the child’s needs but still enforce reasonable standards of conduct. A fourth style, neglecting, was later added (Baumrind, 1991), describing parents who are underinvolved with their children and respond minimally to either their child’s needs or behaviour.

Chao (1994) pointed out that these four typologies are likely to be relevant to Caucasian families because they reflect historical influences and beliefs regarding the raising of children in the Western milieu. Because this history is not shared by those from other cultures, the typologies are unsuited for families of other cultures, including those of Asian descent. It is suggested that instead of describing parenting characteristics by using typologies of classification, an alternative approach is to dismantle typologies into their component parts (Barber, 1997; Darling & Steinberg, 1993). The dismantling of
typologies into linear dimensions seems particularly important when studying cultures other than those from which the typology emerged (Stewart & Bond, 2002).

Parenting practices could be influenced by many factors such as culture, religion, and education. Some studies indicated that gender of parents or the child itself (Conrade & Ho, 2001; Fagot & Hagan, 1991; Russell et al., 1998) and a child’s temperament or characteristics (Porter et al., 2005; Rao, McHale, & Pearson, 2003; Rubin, Nelson, Hastings, & Asendorpf, 1999) could have a differential effect on parenting practices. In a study of Mainland Chinese parenting styles and parent-child interaction (Xu et al., 2005), results suggested that parenting and parent-child interaction are influenced by the ecological context, which is mediated by society-wide changes and shifts in cultural values and child-rearing goals, as well as family-level life stressors and social support.

In Malaysia, parenting practices are likely to be influenced by all the above dimensions, with differences in culture and religion playing a large role. According to the monthly Statistical Bulletin Malaysia (2006), the Malaysian population is made up of Malay (54%), various indigenous populations (11.8%), Chinese (25%), Indian (7.5%) and others (1.7%). Each ethnic group has their own culture and language or dialect which, over the generations, has most likely been influenced by the flow of modernization and Western culture.

Studies of parent-child relationships in Malaysian families are scarce, as are studies on specific parenting practices such as praising. Past studies have focused on broader issues such as parental involvement in basic childcare, parental roles, and family quality (e.g., Hossain et al., 2005; Noor, 1999; Roopnarine, Lu, & Ahmeduzzaman, 1989; Rosnah, 1999).

In general, the Malaysian Muslim (Malay) family system is heavily influenced by Islamic customs and practices locally termed adat (Kling, 1995). Patrilineal hierarchy, kinship network, and flexible family boundaries exert a strong influence on Malay family functioning, especially gender roles. However, the traditional adat and other Islamic values of the Malays are being influenced by Western ideologies of family functioning and social interchanges (Hossain et al., 2005). The so-called modernization appears to be
affecting mothers’ and fathers’ attitudes toward their involvement in childcare and domestic labour (Noor, 1999).

There are few studies on Malaysian Chinese families. However, studies of Chinese families elsewhere in the world hold some relevance to the Chinese Malaysian context because the main cultural roots remain consistent and strong in most families, in spite of other influencing factors. For example, in terms of discipline, Stevenson et al. (1992), on describing urban families in Mainland China and Taiwan, noted that Chinese parents seldom demonstrate affection to older children, and are reluctant to praise them when they are pleased with their behaviour. Chinese parents are not reluctant, however, to reward their children for doing well in school. When children are in elementary school, the parents most often rely on verbal praise and encouragement, although they also may treat them to a special event or give them a gift.

Yunus (2005), in describing child-rearing practices of three major Asian population groups (the Chinese, Indian, and Japanese), noted that although these Asian parents may occasionally tell their children that they are proud of them, acknowledgment of accomplishments of children often may manifest in the form of exhortations to “do better,” to strive for even higher levels of achievement. Family pride also may be expressed by the mother by preparing a special meal or by the father asking the child to take on a special task that shows the family’s confidence in his or her abilities. Public discussion of the child’s accomplishments with others outside the family is considered arrogant and inappropriate. In fact, unsolicited recognition and accomplishments are often politely dismissed, may cause silent embarrassment, or are negated by immediate counterdiscussion of the child’s faults and by making self-deprecating remarks.

Having been brought up in a Chinese family, and having worked with Malaysian families of other cultural backgrounds, it is the experience of the candidate that Malaysian parents do not commonly praise their children, especially verbally. Yet verbal praise is an important component of the LP. Thus, the purpose of this research is to describe the use of positive reinforcement, particularly verbal praising, by Malaysian parents in response to their children’s behaviours, with a view to determining whether an adaptation of the LP for Malaysian families is necessary.
Methodology

Recruitment Procedures

Parents and their preschool children were recruited from the general Malaysian community covering the Malay, Chinese, and Indian populations, by Year 1 speech pathology students from the National University of Malaysia. The involvement of these students was approved by the Head of Department of Audiology and Speech Sciences, National University of Malaysia, as part of their assignment for a course subject. The students were trained how to approach these participants appropriately so as not to make them feel as if they were obligated to participate. The participants were given information sheets and consent forms (see Appendix A) for their participation in the study. Students and/or participants were informed that they could withdraw at any time and were given opportunities to call and ask the candidate any questions to clarify information regarding the study and their participation.

Participants

Twenty dyads were initially selected by the students from amongst Malay, Chinese, and Indian families in urban areas in Malaysia. Convenience sampling was used because it provided quick and convenient access to gather gross information of how parents reinforced their children in a given situation. Random stratified sampling of the 20 dyads was employed to minimize the chance of bias during convenience sampling. Stratification was based on three population groups: Malay, Chinese, and Indian. There were originally 7 Chinese, 7 Malay, and 6 Indian dyads. Only 6 dyads were randomly selected for analysis from the 20 dyads: Data from the other 14 were not analyzed. Two dyads were randomly selected from each of the three population groups for data analysis. These dyads spoke Malay, English or Mandarin. Table 4.1 summarizes the demographic information of each dyad.

Coincidentally, through random sampling, the preschool children consisted of a boy and a girl, from each population group. The age of the preschool children ranged
Table 4.1

Demographic Information of Each Participant Dyad

<table>
<thead>
<tr>
<th>Dyad No.</th>
<th>Cultural Background</th>
<th>Age of Child (years; months)</th>
<th>Gender of Child</th>
<th>Years of Formal Education of Mother</th>
<th>Mother’s Occupation</th>
<th>Language of Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chinese</td>
<td>4;09</td>
<td>Girl</td>
<td>11</td>
<td>Homemaker</td>
<td>English</td>
</tr>
<tr>
<td>2</td>
<td>Chinese</td>
<td>4;05</td>
<td>Boy</td>
<td>&gt;11</td>
<td>Homemaker</td>
<td>Mandarin</td>
</tr>
<tr>
<td>3</td>
<td>Malay</td>
<td>3;06</td>
<td>Girl</td>
<td>&gt;11</td>
<td>Secretary</td>
<td>Malay</td>
</tr>
<tr>
<td>4</td>
<td>Malay</td>
<td>2;07</td>
<td>Boy</td>
<td>&gt;11</td>
<td>Tour executive</td>
<td>Malay</td>
</tr>
<tr>
<td>5</td>
<td>Indian</td>
<td>4;07</td>
<td>Girl</td>
<td>&gt;11</td>
<td>Homemaker</td>
<td>English</td>
</tr>
<tr>
<td>6</td>
<td>Indian</td>
<td>4;08</td>
<td>Boy</td>
<td>&gt;11</td>
<td>Administrative support</td>
<td>English</td>
</tr>
</tbody>
</table>

from 2 years 7 months to 4 years 9 months, with a mean of 4 years 1 month. Parents who participated were all mothers. All mothers except one had more than 11 years of formal education. Three mothers were homemakers and 3 were working mothers. Each of them had at least one child in the preschool years.

Data Collection

A form requesting demographic information about parents and their children was given to parents who consented to participate (see Appendix A). This form requested information such as parents’ educational level, occupation, ethnic background, languages spoken with their children; information about their children, such as their age, their main carers, and whether they were attending preschool.

2 In Malaysia, the current education system consists of three levels with a public examination at each level. The first level is at 6 years of formal education (Ujian Penilaian Sekolah Rendah), second level is at 9 years of formal education (Penilaian Menengah Rendah) and the third level is at 11 years of formal education (Sijil Pelajaran Malaysia, equivalent to Year 12). Certificates obtained at each level determine a person’s qualifications. Any further education is tertiary education to obtain a higher certificate, diploma, or a higher degree.
Chapter 4 Malaysian Parents’ Use of Positive Reinforcement

Data consisted of recordings of parent-child interactions that lasted for 10 to 15 minutes. Instrumentation used for the recordings were Sony video cameras model DCR-TRV285E borrowed by the students from the Department of Audiology and Speech Sciences, National University of Malaysia. Year 1 university students were trained how to video record the interactions and provide instructions to the participants. They video recorded each parent-child dyad in the child’s own home. Two contexts were sampled: an activity in which the child was interested (Task 1) and an activity in which the child was not interested (Task 2). Each activity was undertaken at a table, and clearing up after each activity was also video recorded as part of the interaction. Order of task presentation was nonrandom, in that Task 1 always came first. This was because children were more likely to cooperate if an interesting task was presented first compared to the possibility of no cooperation at all if Task 2 was presented first.

Task 1 was chosen to provide parents the opportunity to praise their children when the child complied with a task in which the child was interested. Task 2 was chosen as a different context with the assumption that the children might not comply with a task in which they were not interested and to investigate whether praise would be provided when they did comply. Parents would need to actively “parent” to gain compliance. Clearing up after each task was included to provide parents with more opportunities to use praise when their children complied, especially if they refused initially to clear up.

Parents were given the opportunity to choose the type of task for their children from their own range of daily activities with the assumption that they knew best their children’s likes and dislikes. For Task 1, playing with a cooking set was the most popular task in which the children were interested. The other activities chosen were completing a puzzle and playing with toy dinosaurs.

For Task 2, activities chosen consisted of a variety of tasks such as playing with toy robots, writing the alphabet, colouring pictures, moulding plasticine, counting, looking at picture books, and riding a bicycle. Although riding the bicycle was not a table task as initially required and methodologically should be excluded, it was nevertheless an undesirable task for the child and the interaction sample served to provide information about how the mother managed the child with and without verbal reinforcement.
Therefore, the candidate decided not to exclude data gathered during this activity from the analysis. For two children, more than one task was carried out during the 10 to 15 minutes because the children could not sustain enough interest and attention to continue the initial task.

At the end of each task and after clearing up, parents were asked to rate their child’s behaviour on the scale from 1 to 10 (1 = worst behaviour, 10 = best behaviour). The rating was used to give the researchers an indication of the extent to which parents could have provided praise in relation to their child’s overall behaviour. For example, a parent who rated their child’s behaviour as 9 or 10 may have had more opportunities to praise their child’s behaviour, yet this could have occurred infrequently or not at all.

Data Analysis

Twelve interaction samples were analysed: for each dyad there was one interaction sample for Task 1 and one for Task 2. Each sample also included the interactions that occurred while clearing up after the task. Each observed interaction was transcribed by the candidate, an SLP, using a basic format by Müller, Damico, and Guendouzi (2006). The transcription captured both the verbal and nonverbal components of the interaction. This involved the words spoken, identification of any doubtful or unintelligible passages, division of the spoken text into information and/or syntactic units by means of punctuation, numbering of these units, identification of noticeable hesitation or pausing, measurement of the pauses, and identification of noticeable emphasis on certain words or syllables or comments on intonation. Each transcribed sample was rechecked by another SLP to ensure accuracy of the transcription. Any disagreement or question was discussed until agreement was achieved.

Each transcribed sample was analysed using a combination of techniques: Coding Level 1 - qualitative techniques of conversational analysis (Hutchby & Wooffitt, 2005) and Coding Level 2 - a quantitative coding system specially constructed for the purpose of this study.
Coding level 1.

Parental responses were identified by the candidate and two other Malaysian speech-language pathologists, who between them understood Malay, English, and Mandarin. Identification of parental responses was achieved through consensus agreement between the three SLPs. Parental responses were defined as any response that was contingent on a child’s behaviors and therefore excluded prompts or initiations prior to a child’s behavior. These contingencies could be positive (+PC), negative (-PC) or neutral (NR) (see Appendix B).

Table 4.2 gives examples of how Coding Level 1 was achieved. Agreement was achieved through consensus between the three coders about whether a parental behavior was a response or not. For example, Exchange 1 shows that the there were two responses from the parent, a nonverbal (in italics) and a verbal response; Exchange 2 shows that the parent had initiated a conversation with the child and the child had responded. Thus, Exchange 1 was coded as a parental response but Exchange 2 was not.

Table 4.2
Examples of Coding Levels 1 and 2

<table>
<thead>
<tr>
<th>Exchange</th>
<th>Speech and Behavior Sampling</th>
<th>Coding Level 1</th>
<th>Coding Level 2</th>
</tr>
</thead>
</table>
| 1        | (takes out a sharpener and puts the pencil in it) C
|          | ni (.) letak ni. (This. Put this). | √1x PC         | 1 CAQ          |
|          | (tries to take the sharpener from child) P | √1x PC         | 1 CAQ |
|          | :tak nak la main sharpener ni, ni dah sharp ni. (Don’t playla with this sharpener, this is already sharp) |
| 2        | P : Tu, telur dah hangus dah tu. (That, that egg is burned). |
|          | C: (moves forward to look at the toy stove) |

Note. aChild  bParent
**Coding level 2.**

Having identified the parental responses, these behaviours were further coded into specific categories using a modified coding system. The coding system was modified based on systems and guidelines from various studies (Eyberg, Nelson, Duke, & Boggs, 2004; Eyberg & Robinson, 2000; Onslow et al., 2003). Categories were drawn mainly from Eyberg et al. (2000) with permission from the first author. These categories were classified as either positive or negative using concepts derived from Onslow et al. (2003). This coding system was modified several times and was shown to be reliable through two pilot analyses done by three coders on each occasion. The coders were speech-language pathologists who were independent of the study. Pilot analyses were done on one interaction sample that was not used in the study. Modification included combining certain categories, creating new ones to make coding easier and omission of categories that were not necessary. Table 4.3 shows a summary of the original categories, the modified categories and the reasons for the modifications.

Thus, for Coding Level 2, specific categories were used. Positive Parental Contingencies consisted of Acknowledgment or Encouragement (AE), Praise (P), Incentive (I), Request for Self-Evaluation (RSE), and Positive Gesture (PG). Negative Parental Contingencies consisted of Critical Acknowledgment/Question (CAQ), Persuasion (Pn), Grandma’s Rule (GR), Warning (W), Negative Gesture (NG), Warning Gaze (WG), and Ignore (Ig). There was also a Neutral Response category (see Appendix B for definitions and examples of these categories). All the categories were verbal behaviors except Incentive (I), Positive Gesture (PG), Negative Gesture (NG), Warning Gaze (WG), and Ignore (I), which were nonverbal behaviours. An extra column on the coding form was provided for written comments or remarks on ambiguous responses, or other aspects that do not fall into the categories above, which may include paralinguistic aspects such as significant pausing, stress, or affect. However, stress or certain tonal contours during verbalization provided information on deciding whether a verbalization was a question (such as rising intonation), a command, a warning, sarcasm, sincere
Table 4.3

Original Categories and Modification of the Categories

<table>
<thead>
<tr>
<th>Original Categories</th>
<th>Modification</th>
<th>Reasons for Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement</td>
<td>Omitted</td>
<td>Statements and questions that were prompts or initiation of a conversation were not coded. Statements and questions that were responses would be coded under other appropriate categories. Hence, these categories were not necessary.</td>
</tr>
<tr>
<td>Questions</td>
<td>Omitted</td>
<td></td>
</tr>
<tr>
<td>Descriptive Comment/Encouragement</td>
<td>Combined as Acknowledgment/Encouragement</td>
<td>There were overlaps of definitions and similarities during the pilot coding. Hence, combining these categories made coding easier and more reliable without loss of any detail needed for this study.</td>
</tr>
<tr>
<td>Descriptive Question/Encouragement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflective Statements and Questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acknowledgment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem Solving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrelevant Verbalization</td>
<td>Omitted</td>
<td>This was defined as anything unrelated to the child. Hence, it was not needed.</td>
</tr>
<tr>
<td>Unlabeled Praise</td>
<td>Combined as Praise</td>
<td>Combining these categories made coding easier and more reliable and retained the level of detail required by this study.</td>
</tr>
<tr>
<td>Labeled Praise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Command</td>
<td>Combined as Critical Acknowledgment/Question</td>
<td>Combining these categories made coding easier and more reliable.</td>
</tr>
<tr>
<td>Indirect Command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Statement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Command</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Positive</td>
<td>Termed as Positive Gesture</td>
<td>Changing the term made understanding easier for the coders.</td>
</tr>
</tbody>
</table>
Chapter 4 Malaysian Parents’ Use of Positive Reinforcement

Table 4.3 continues

*Original Categories and Modification of the Categories*

<table>
<thead>
<tr>
<th>Original Categories</th>
<th>Modification</th>
<th>Reasons for Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Negative</td>
<td>Combined as Negative Gestures</td>
<td>Combining these categories made coding easier and more reliable. Changing the term made understanding easier for the coders.</td>
</tr>
<tr>
<td>Physical Intrusion</td>
<td>Grandma’s Rule</td>
<td>Remained unmodified</td>
</tr>
<tr>
<td>Warning</td>
<td>Combined as Warning</td>
<td>Combining these categories made coding easier and more reliable.</td>
</tr>
<tr>
<td>Time Out Warning</td>
<td>Critical Statement Marital</td>
<td>Omitted</td>
</tr>
<tr>
<td>Parent Ignore</td>
<td>Parent Ignore</td>
<td>Termed as Ignore</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Changed the term made understanding easier for the coders.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New Categories: Request for Self-Evaluation Incentive Warning Gaze Persuasion Neutral Response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>These were created to fit responses that did not fit into the other categories but were of interest in this study.</td>
</tr>
</tbody>
</table>

praise, or acknowledgment. Hence, such verbalization was categorized according to the defined categories and not analyzed separately as distinct paralinguistic categories.

Coding Level 2 was done independently by the candidate. Table 4.2 shows examples of how Coding Level 2 was achieved. When there was more than one response in one exchange, each response was color coded to ensure that each response would be coded separately. “1 NG” (Negative Response) was the Level 2 coding of the nonverbal
response whereas “1 CAQ” (Critical Acknowledgment/Encouragement) was the Level 2 coding of the verbal response.

Reliability.
Reliability of Coding Level 1 was achieved through consensus agreement between the candidate and two Malaysian SLPs. For Coding Level 2, the candidate coded all the samples. Half of these samples from the three populations stated above (Malay, Chinese, and Indian) were randomly selected and were recoded a month later to establish intrarater reliability. Item-to-item agreement of 95.9% was achieved.

For interrater reliability, half of the total samples from each population group (Malay, Chinese, and Indian) were randomly selected. These samples were coded by one of the Malaysian SLPs who also did the Coding Level 1. Reliability was established first between the candidate and the SLP through pilot samples. Item-to-item agreement of 91.6% was achieved for independent coding of the research samples.

Analysis of coding.
Descriptive statistics were used to analyse the coded data. Comparisons were made between the tasks, the parents, and the types of responses that occurred.

Results

Task 1
Total parental responses during Task 1 ranged from 40 to 118 responses (mean = 83.0). Acknowledgment and Encouragement (AE) and Critical Acknowledgment or Question (CAQ) were exhibited by all the parents during this task, with AE being the most frequent parental response for all parents. Other responses were Positive Gesture (PG), Negative Gesture (NG), Grandma’s Rule (GR), Request for Self-Evaluation (RSE), Neutral Response (NR), Praise (P), Persuasion (Pn), and Ignore (Ig). Not all parents gave these responses. Only two parents praised their children, while clearing up at the end of
the task. The praise given was “good boy” and “pandai (clever).” Both these parents rated their children’s behavior as 10 (best behavior). Ratings from parents were from 5 to 10 (i.e., 1 x “5,” 2 x “8,” and 3 x “10”; mean of 8.5). Responses that did not occur during Task 1 were Incentive (I), Warning (W), and Warning Gaze (WG). Table 4.4 contains a summary of the occurrence of each type of response.

Task 2

Total parental responses during Task 2 ranged from 25 to 255 responses (mean = 93.2). The categories of responses used and not used mirrored the pattern seen in Task 1. Table 4.4 contains a summary of the occurrence of each type of response. Acknowledgment and Encouragement (AE) and Critical Acknowledgment or Question (CAQ) were exhibited by all the parents during this task, with AE again being the most frequent parental response for all but two parents. One of the latter parents had an equal amount of AE and CAQ (42.5% each) for her child: CAQ was given mostly due to the child’s noncompliance and misbehavior during Task 2. The other parent showed a higher percentage of Positive Gesture (PG) (33.9%) compared to AE (18.6%) due to this parent showing lots of physical affection such as holding, hugging, and kissing the child when she complied with an undesirable task.

Positive Gesture (PG) and Negative Gesture (NG) were not exhibited by all parents. As in the previous task, PG mostly involved parents giving their child a smile or nodding in agreement with what the child had said. NG included pulling the child’s arm to prevent the child from fidgeting, holding a child’s hand to correct the child holding an item such as a pencil, and erasing child’s written work because it was not written to the parent’s satisfaction.

Praise was more frequent during Task 2 than the previous task. All but one parent praised their child at least once during this task (see Table 4.5). The parent who did not praise her child in Task 2 also did not praise in the previous task, although parental rating for both tasks was 8. For the other parents, praise was mostly given while clearing up and when parents were satisfied with their child’s performance such as in their hand written work or their end products with plasticine. Examples of praise given were “good,”
“obedient,” “very good,” “pandai (clever),” “good girl,” “good boy,” and “cantiknya (how beautiful).” Overall, parental ratings again ranged from 5 to 10 (i.e., 1 x “5,” 1 x “7,” 1 x “8,” 1 x “9,” and 2 x “10”; mean of 8.2). The parent who rated her child as 5 in this task also rated her child as 5 in the previous task.

Table 4.4

<table>
<thead>
<tr>
<th>Percentage of Responses by Categories and Tasks: Mean and Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Response</td>
</tr>
<tr>
<td>Acknowledgment/Encouragement (AE)</td>
</tr>
<tr>
<td>Critical Acknowledgment/Question (CAQ)</td>
</tr>
<tr>
<td>Negative Gesture (NG)</td>
</tr>
<tr>
<td>Positive Gesture (PG)</td>
</tr>
<tr>
<td>Neutral Response (NR)</td>
</tr>
<tr>
<td>Request for Self-Evaluation (RSE)</td>
</tr>
<tr>
<td>Grandma’s Rule (GR)</td>
</tr>
<tr>
<td>Praise (P)</td>
</tr>
<tr>
<td>Persuasion (Pn)</td>
</tr>
<tr>
<td>Ignore (Ig)</td>
</tr>
<tr>
<td>Incentive (I)</td>
</tr>
<tr>
<td>Warning (W)</td>
</tr>
<tr>
<td>Warning gaze (WG)</td>
</tr>
</tbody>
</table>
Table 4.5

Parents and the Occurrence of Praise in Task 1 and Task 2

<table>
<thead>
<tr>
<th>Parent</th>
<th>Task 1</th>
<th>Task 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>X</td>
<td>✔️ (1.9%)</td>
</tr>
<tr>
<td>C2</td>
<td>X</td>
<td>✔️ (4.7%)</td>
</tr>
<tr>
<td>M1</td>
<td>X</td>
<td>✔️ (4.1%)</td>
</tr>
<tr>
<td>M2</td>
<td>✔️ (2.0%)</td>
<td>✔️ (6.8%)</td>
</tr>
<tr>
<td>I2</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>I3</td>
<td>✔️ (0.9%)</td>
<td>✔️ (5.1%)</td>
</tr>
</tbody>
</table>

Note. C refers to Chinese. M refers to Malay. I refers to Indian. ✔️ indicates occurrence of praise during the task. X indicates the nonoccurrence of praise during the task.

Discussion

The main aim of this small study was to gather preliminary information on Malaysian parents’ use of positive reinforcement, particularly verbal praising in response to their children’s behaviour. Results have shown that parents generally reinforce their children frequently in a positive way. In addition, parents praise their children although the frequencies were low compared to the other type of responses. This also is not to say that praising is more frequent in other cultures as such a conclusion cannot yet be drawn: research comparing the practice of praising in other countries has not yet been conducted. Results obtained also showed that the use of the 10-point parental rating scale was insensitive to the change in the children’s behaviours. Parents generally used the scale to rate the children’s overall behaviours at the end of both tasks which generally had positive outcomes. A rating of 8 for a child did not relatively mean more praising and a rating of 5 did not relatively mean less praising for a child. For example, one parent who rated her child 8 for both tasks did not praise her child at all in both tasks. The scale did
not correlate well the frequency of praise given by a parent with the child’s rated behaviour.

However, the frequency of praise was relative to the total number of responses made by the parent during the task. Some parents continually prompted and initiated the interaction whereas others would wait for their child to initiate first and then respond. This could affect the percentage of the types of response as the total number of responses would be lower for a parent who always prompted or initiated compared to a parent who waited and then responded. For example, one parent praised her child 12 times in a total of 255 responses (4.7% praise) whereas another praised her child 6 times in a total of 92 responses (6.8% praise).

Parents generally did not praise when their child behaved well throughout a task. A parent might have felt that the child did not require much praise because the tasks were reinforcing or rewarding enough to the child. This could explain why in Task 1, when tasks were interesting to the children, only 2 out of 6 parents praised their children and praise only occurred during clearing up, after some children had initially refused to clear up. In contrast, during Task 2, parents had to encourage, reprimand, command, or persuade their children when they refused to cooperate during the tasks. Praise seemed to be provided as a verbal reward when they finally complied or when parents were satisfied with their effort after a period of encouragement, reprimands, commands, and persuasion to participate in the tasks. In other words, if a child had started behaving well, parents seemed less inclined to praise whereas if a child had started off misbehaving then later complied, a parent was more inclined to praise the child. The former could be because of the notion that children are expected to be obedient to their parents. Thus, good behaviour was taken for granted. The latter could simply be because parents felt that if a child who had misbehaved had learned to comply, they should somehow be rewarded or the positive behaviour should be reinforced.

Parents’ responses also could be due to parents’ personalities. Some parents were generally more quiet and reserved and would respond to their child in short utterances. However, this could also be due to their awareness of being videorecorded. On the other hand, some parents could be more talkative than usual although most parents seemed to
become comfortable after some time, particularly during the clearing up. Among the six parents who participated, there was no obvious indication that educational level and socioeconomic status of the parents contributed to any similarities or differences in parental responses.

The tasks chosen by parents could also contribute to the interaction as some tasks would allow for more spoken interaction (e.g., cooking set) compared to other tasks (e.g., fighting game). Task presentation in a nonrandom order could also influence parental responses. Parents might have responded differently if Task 2 was presented first, as Task 2 was presumed to be a more demanding task and therefore required more “parenting.”

**Expressions of Praise**

Expressions of praise were found to be limited as most of them were “good” or “pandai (clever)”. The limited expressions of praise will have a clinical implication during the LP as the positive impact of praise might lessen if the same expression is used too frequently. This is discussed further in the section on the implications of this study.

**Code-Switching**

It was found that most occurrences of praise were expressed in the English language, even for parents who spoke Malay or Mandarin as their first language. This phenomenon of code-switching is defined as the use of two or more linguistic varieties, inclusive of dialect changes and style changes, in the same conversation (Cheng, 2003) or the use of more than one language or dialect within a conversational turn or utterance (David, 2003). Code-switching is a frequently used communication tool in Malaysia as the majority of Malaysians have several languages and dialects at their disposal. Code-switching has become an integral part of Malaysian speech styles (David, 2003). There is a large body of literature on code-switching in adults, studying different language pairs in code-switching and why it occurs in different situations. One notion of why code-switching occurs is that a speaker may not be able to express himself or herself in one language so switches to the other to compensate for the deficiency (Skiba, 1997). Another reason code-switching occurs is when an individual wishes to express solidarity
with a particular social group, to exclude nonlanguage users from a social interaction (David, 2003; Skiba, 1997). David (2003) also stated that code-switching functions to soften a directive, to emphasize a point or to help participants with differing language proficiencies to communicate.

In this study, code-switching may be indicative of difficulties retrieving the exact words for praise in a particular language (e.g., Malay or Mandarin) due to factors such as infrequency of use in that language. Parents frequently code-switched to English even though words of praise exist in their other languages. The infrequency of praise in their own languages could mean that parents associated the practice of praise with cultures where English is the primary language, rather than with cultures wherein English is perhaps the second or third language, such as in Malaysia. Hence, it could perhaps explain why praise in English seemed to come more naturally compared to praise in Malay or Mandarin. However, if praising in English serves its purpose of reinforcing a behaviour, and further emphasizes the positive impact, then code-switching could prove to be useful when implementing the LP.

Other Responses

In this study, acknowledgment was frequently used. This referred to parents agreeing with what the child had said and reflecting or repeating all or part of the child’s preceding verbalization. In these cases, parents did not show any verbal acknowledgment that expresses liking to their children’s behavior, attribute, or product in a complimentary way. In other words, borderline compliments (verbalizations that were not direct praise but more subtle) were not shown. For example, parents did not say, “I like the way you do that” or “You did that very neatly.” However, some parents expressed liking or delight through their facial expression or the use of physical gestures such as smiling or clapping their hands.

Most parents demonstrated the ability to express approval nonverbally, such as by smiling, nodding and patting or touching their child warmly, although these positive gestures were not necessarily coupled with verbal praise. Other responses that were positive were requests for self-evaluation.
Limitations and Implications of This Study

It should be noted that the limitation of this study is the small sample size, which did not include parents who had an education background of fewer than 9 years. It also did not include parents who live in rural areas or parents from other ethnic backgrounds that are scattered in other parts of Malaysia. Thus, factors such as different educational levels, geographical influences, or cultural upbringing may have played a role in influencing parenting practices, specifically in the practice of praising. Bias could also have been introduced at the start of the study when the parents were given information sheets (Appendix A) that specifically disclosed that the study was on verbal feedback and praising. Future studies should be more careful to state a more general purpose of a study at the start of the study and then debrief the participants at the end of the data collection on the specific purpose of the study. The order of task presentation that was nonrandom could also influence the interaction, thus introducing some bias during sampling. It is suggested that future research could include a larger sample size and that order of task presentation should be counterbalanced to minimize the possibility of any sampling bias.

Nevertheless, this study was not meant to be generalized to the entire Malaysian parent population but to provide an indication of whether parents praise their children and if so, how frequently they do it and what they say. It gives a snapshot of how some Malaysian parents use positive responses, particularly praise. This is important because one of the core components used in the LP utilizes praising, and this program has been proven to have high success rates in other countries. Successful implementation of this program will be very useful in Malaysia where early intervention for stuttering is scarce.

However, as hypothesized, this study found that praising was not common among a small sample of Malaysian parents and therefore the LP in its published form might not be suitable for Malaysian families. However, the actual practice of praise by parents during naturalistic contexts versus praising for therapeutic purposes could be different. In addition, in spite of results showing relatively low frequency and limited expressions used by parents, parents do praise their children. This implied that parents can be
expected to praise or learn how to praise stutter-free speech as required in the LP if trained properly.

Parents also demonstrated the ability to positively reinforce their children nonverbally such as through smiling, nodding and patting or touching their child warmly. Positive nonverbal reinforcement could provide a feasible method in supplementing or increasing the positive impact of the verbal positive contingencies in the LP. This is supported by Lattermann, Euler, and Neumann (2008) who investigated the impact of the LP on German-speaking preschoolers. Many parents reported difficulty in providing the required amount of praise in the LP. Parents’ daily praise of fluent speech appeared to be unnatural and exaggerated. After training parents to correctly and naturally implement praise in a way that was acceptable to both parents and child, parents who continued to feel uncomfortable giving praise were trained to use “nonverbal praise” such as noise-makers and individual gestures to supplement their training sessions at home. It was reported that nonverbal praise resulted in a successful and more effortless increase in overall praise for German parents so that nonverbal praise was introduced to all the parents in the study. The method was reported to be feasible in increasing praise in training sessions and everyday life without parents feeling uncomfortable or forgetting to use it (see Lattermann et al., 2008).

Two assumptions can be made from the results of this study. First, the LP could be implemented with the acknowledgment that there may still be a cultural misfit between the program and Malaysian society. This means training parents to fit with the LP, acknowledging the fact that the program may run longer than the average duration if parent training takes a long time. On the other hand, the LP may also work better for children who, having rarely been praised or complimented, may respond more quickly and effectively than expected due to the powerful and positive effect that praise could have on them.

Second, the LP could be adapted to suit Malaysian families. This means that a clinician will need to explore a wider variety of expressions of praise, in different languages if necessary, to prevent saturation from overexposure to a single expression of praise. Code-switching should be allowed for praise, and the clinician will need to assist
the parent to increase the frequency of praising. The clinician also may need to work out a systematic schedule of praising for the parent if parents find it difficult to increase the frequency. Positive nonverbal reinforcers such as smiling, nodding and patting or touching their child warmly also could be integrated with the positive VCs to supplement therapeutic processes. This should be part of an ongoing process of problem-solving between the clinician and the parent.

In describing Malaysian parents’ use of positive reinforcers, this study also opens up some new lines of enquiry in parental interactions and their use of reinforcers, and its potential relationship in therapeutic processes. Future research could include interactions involving fathers or how parents use positive reinforcement with older children.

**Conclusion**

Implementing the LP or adapting it for Malaysian families may or may not be efficacious. Nevertheless, early stuttering intervention is scarce in Malaysia and the LP has the best available evidence as a treatment for early stuttering. Therefore, the implementation or the adaptation of the LP will be a stepping stone in the area of stuttering in Malaysia.
CHAPTER 5
MALAYSIAN PARENTS’ RESPONSES AND REACTIONS TO THE LIDCOMBE PROGRAM APPROACH

Introduction

The results obtained in Study 1 indicated that at least some Malaysian parents praise their children, although with low frequency and limited expressions. However, using praise in a therapeutic approach, such as that required in the Lidcombe Program (LP), could be different from using praise in natural contexts. Thus, the second study of the research program was designed to obtain preliminary information on Malaysian parents’ responses and reactions to the approach used in the LP, particularly to the component of verbal praising. This is particularly important because the LP is mainly conducted by parents at home and, having been developed within a different culture, might not be well accepted by Malaysian families whose culture most likely differ in terms of parenting practices. Therefore, before implementing the LP, it is important to find out how parents might react or respond to the approach used. Thus, Study 2 aimed to obtain data on Malaysian parents’ responses and reactions to the LP approach with a focus on integrating these data with data from Study 1. Through this integration, the candidate aimed to obtain a clearer view on whether there was a need to adapt the LP to suit Malaysian families and how to carry out the adaptation if it was found to be necessary.

The candidate chose to use a focus group design to obtain the information needed. This is because the give-and-take interactions characteristic of focus group interviews lead to spontaneous responses from the participants (Berg, 1995). These are important in giving the researcher a dynamic and holistic view of participants’ immediate reactions and responses to the approach used in the LP, both as individuals and as a group. Focus group interviews enable access and insight into ideas, beliefs, attitudes,
complex behaviour, motivations, cross-referenced opinions, and the range and depth of opinions. These data help researchers to gain a clear view of participants’ thinking, language and reality, and explore variation, diversity, or consensus on a topic (Minichiello et al., 2004). These are particularly important in a multicultural society like Malaysia that has such diverse cultural and ethnic groups with different beliefs and perspectives in many aspects of life. Thus, focus group interviews would enable the candidate to gather information on how each participant with different or perhaps similar cultural background reacts and responds to a foreign approach. Focus group interviews also help to explore complex ideas and issues that arise between individuals in the group. Data gathered would help the candidate generate ideas and identify issues in regards to the approach used in the LP.

**Methodology**

*Recruitment Procedures*

Parents of preschoolers were recruited from government and private preschools in Kuala Lumpur and Kuching through convenience sampling. Convenience sampling was used because it provided quick and easy access to gather information (Auerbach & Silverstein, 2003; Curwin & Slater, 2008). This approach is useful when “we want to gauge opinion quickly before doing further work” (Curwin & Slater, 2008, p. 60). In this study, the candidate wanted to gather quick information on parents’ responses and reactions to the LP approach to identify any potential issues that may arise during implementation. Thus, convenience sampling was appropriate. Although sampling is prone to bias and the findings cannot be generalized to the population in general, bias can be reduced by developing inclusion and exclusion criteria to the sampling (Houser & Bokovoy, 2006). In this study, the inclusion criterion was that participants must be parents of preschoolers. Those who did not have any child or children in the preschool age range were excluded.
Chapter 5 Malaysian Parents’ Responses and Reactions

A letter seeking permission to recruit parents (see Appendix C) was given to the principals of preschools before recruitment, explaining the purpose of the study. The candidate also requested permission to meet teachers to talk about early stuttering, its identification, and how parents can help their children who stutter. The teachers were to disseminate information to parents about early stuttering and the purpose of the focus group interviews. Parents who expressed interest in participating in the focus group discussion were contacted by the candidate and verbal information regarding the purposes of the study and the importance of early stuttering intervention were given to parents. Brochures regarding early stuttering, information sheets and consent forms were also distributed to them (see Appendix D). They were also given opportunities to ask the candidate any questions to clarify information regarding the study and their participation. Parents were also advised that they could withdraw from the study at anytime without penalty. Parents who consented completed a short questionnaire designed to gather demographic information (see Appendix D).

Participants

Focus Group 1.

Participants in Focus Group 1 were seven parents from the general population in Kuala Lumpur, West Malaysia. Five of the participants were mothers and two were fathers. One of these participants was a mother who was brought to the focus group discussion by another participant unexpectedly. This parent wished to participate although she did not fulfill the inclusion criteria. She had no child in the preschool years: she had school-aged children, the youngest being 7 years old. The candidate was reluctant to exclude her from the focus group because in doing so, the candidate would risk alienating the participant who brought the mother to the discussion and could lose this participant from the focus group discussion. Therefore, the parent was included in the focus group discussion. She was given information sheets and completed the consent form in regards to the study. Her data were retained and analysed together with data from the other participants.

Of the seven participants, there were two pairs of husband and wife. All of the participants had at least three children, with at least one child in the preschool years, with
the exception of the participant with school-aged children. Two participants had 11 years of formal education and the others had more than 11 years of formal education. Two participants were homemakers, two held managerial positions, two were professionals in education and one held an administrative position. The two pairs of husband and wife were Malay and the remainder of the participants was Chinese. Table 5.1 summarizes the descriptive information of participants in Focus Groups 1 and 2 and the pseudonyms used for each participant.

Table 5.1
Descriptive Information of Participants in Focus Groups 1 and 2 and Pseudonyms Used

<table>
<thead>
<tr>
<th>Focus Group</th>
<th>Pseudonym</th>
<th>Years of Formal Education</th>
<th>Number of Preschool Children</th>
<th>Employment Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yale (M)</td>
<td>&gt; 11 years</td>
<td>2</td>
<td>Manager</td>
</tr>
<tr>
<td></td>
<td>Farah (M)</td>
<td>&gt; 11 years</td>
<td>2</td>
<td>Educator</td>
</tr>
<tr>
<td></td>
<td>Wendy (C)</td>
<td>11 years</td>
<td>1</td>
<td>Homemaker</td>
</tr>
<tr>
<td></td>
<td>Noor (M)</td>
<td>&gt; 11 years</td>
<td>1</td>
<td>Manager</td>
</tr>
<tr>
<td></td>
<td>Azimah (M)</td>
<td>&gt; 11 years</td>
<td>1</td>
<td>Clerk</td>
</tr>
<tr>
<td></td>
<td>Betty (C)</td>
<td>11 years</td>
<td>1</td>
<td>Homemaker</td>
</tr>
<tr>
<td></td>
<td>Chong (C)</td>
<td>&gt; 11 years</td>
<td>0</td>
<td>Educator</td>
</tr>
<tr>
<td>2</td>
<td>Eve (C)</td>
<td>&gt; 11 years</td>
<td>1</td>
<td>Architect</td>
</tr>
<tr>
<td></td>
<td>Tony (C)</td>
<td>&gt; 11 years</td>
<td>1</td>
<td>Nutritionist</td>
</tr>
<tr>
<td></td>
<td>Tammy (C)</td>
<td>&gt; 11 years</td>
<td>1</td>
<td>Anaesthesiologist</td>
</tr>
</tbody>
</table>

Note. M indicates Malay. C indicates Chinese.

Focus Group 2.
Six participants were recruited from the general population in Kuching, East Malaysia. Five were mothers and one was a father. However, three mothers withdrew from
participating in Focus Group 2 because their children had fallen ill on the day the focus group discussion was to be held. The remaining three participants were two mothers and a father. Of these participants, one pair was husband and wife. All of the participants had at least one child in the preschool years. All participants had more than 11 years of formal education and all were working professionals. All participants were Chinese (see Table 5.1)

Data Collection

Times and dates for focus group discussions were negotiated with each participant through phone calls. Focus Group 1 was held in one of the departmental rooms in the National University of Malaysia. Approval was obtained from the head of the Audiology and Speech Sciences Department for the use of the room. Focus Group 2 was held about a month after Focus Group 1 and was conducted in a room in a church’s parish centre with permission from the administrator of the centre.

The candidate was the moderator for each focus group discussion. The candidate is an SLP who is able to speak English, Malay, and a few Chinese dialects. During each focus group discussion, the candidate introduced the group, and explained the purpose of the group discussion and the manner in which it would proceed. The candidate also requested confidentiality between the participants. The group members were also encouraged to raise any issues they felt could be relevant to any topics discussed. The language used for both the focus group discussions was English as it was a common language for all participants.

Two video clips were used during the focus group discussions. Video 1 was a simulated interaction between a normally speaking preschooler and a Malaysian SLP. In this interaction, the SLP provided verbal contingencies (VCs), particularly praise, for desirable behaviours, such as when the child was able to name a picture correctly or when the child said something appropriate about their activity. Video 2 was a simulated interaction where VCs for stutter-free speech and stuttering behaviours were given to a preschooler who stutters by a Malaysian SLP. The duration of both videos and the amount of praise in both videos were the same. These videos were used to prompt
discussion during the focus group interviews. A semistructured interview guide was also used to prompt and initiate discussion (see Appendix E).

Video 1 was shown first, followed by a discussion. Participants were asked 3 main questions. The first question elicited participants’ comments in regards to the parent praising the child. The second question asked whether participants would or would not praise their children in a similar situation. The third question elicited participants’ thoughts on praising their preschool children when they behave well. Each main question was followed by prompt questions to obtain more information pertaining to the participants’ answers, such as asking them how they felt about what they had noticed, to be more specific with their answers and/or to encourage them to give examples.

After this discussion, Video 2 was shown and another discussion followed. Participants were asked 3 main questions. The first question was to obtain participants’ comments on the way the SLP spoke to the child who stutters, particularly in regards to providing praise. The second question was in regards to what the participants would do if their child did not seem to be “speaking properly;” in other words, might have a speech problem, with a focus on stuttering. The third question placed the participants in a hypothetical situation, asking what they would do if their child who stutters spoke well at certain times. Each main question was followed by prompt questions to obtain more information pertaining to the participants’ answers, asking for specifics such as how and why, and encouraging participants to give examples to their answers.

Focus Group 1 lasted approximately 45 minutes. During this focus group, one participant arrived after Video 1 was played and the video clip was replayed for her. Two other participants arrived in the midst of the discussion following Video 1 and the video was not replayed. However, they were oriented to the discussion. They were present for Video 2 and the discussion that followed.

Findings from Focus Group 1 suggested that participants lacked knowledge of early stuttering. An early and continuous analysis of findings before conducting the next focus group/s will help determine the number and focus of subsequent meetings, and allow a researcher to revise the topic guide in light of the information obtained (Litosseliti, 2003). Therefore, in Focus Group 2, the candidate decided to obtain
additional information about participants’ level of knowledge of early stuttering, prior to playing Video 1. This was done in order to verify the candidate’s impression obtained from Focus Group 1 that participants lacked knowledge about early stuttering. In addition, it was felt that having knowledge of participants’ levels of understanding of early stuttering would give the candidate a better sense of what to expect in terms of participants’ knowledge of early stuttering intervention. Three questions were asked during this preliminary discussion in Focus Group 2. The first question was in regards to what participants knew about early stuttering in general. The second question was whether they thought early stuttering is a problem and the third question was what they thought causes early stuttering. Each main question was followed by prompt questions to obtain more information pertaining to the participants’ answers, asking for specifics such as why and encouraging the participants to give examples to their answers (see Appendix F). Information obtained in this preliminary discussion verified the findings from Focus Group 1 (see Findings section).

After this preliminary discussion, the procedures that were implemented in Focus Group 1 were also carried out in Focus Group 2: Video 1 was played, followed by a discussion. Then, Video 2 was played followed by a discussion. In addition, after the discussion following Video 2, participants in Focus Group 2 were asked an additional question addressing their level of comfort in providing VCs under professional advice for their hypothetical child who stutters. This question was asked because findings from Focus Group 1 indicated that participants were generally willing to follow a professional’s advice on what would benefit their children. Therefore, the candidate decided to verify this and pursue additional information on the participants’ levels of comfort in carrying out advice given by a professional. In addition, this information could give the candidate a better sense of what to expect from parents when implementing the LP. Focus Group 2 lasted approximately 30 minutes. Although Focus Group 2 had only three participants that limited the total range of experiences (Krueger & Casey, 2000), the information obtained did not differ significantly from what was obtained in Focus Group 1. Thus, the candidate decided that it was not necessary to conduct another focus group: data saturation had been reached. Saturation refers to the point when a researcher is no
longer obtaining new information or has previously heard the range of ideas expressed (Krueger & Casey, 2000).

During each focus group discussion, each participant was encouraged to speak, and was asked directly for his or her opinion when it was not volunteered. This ensured that each participant had the opportunity to participate. The candidate also asked for clarification when needed. The candidate wrote occasional notes to serve as “memory joggers” (Burnard, 1991, p. 462) as the discussions progressed. With permission from the participants, both focus group discussions were audio recorded to verify data collection and presentation of findings (Guba, 1981).

At the conclusion of each focus group, the candidate thanked the participants for their time. The participants were also encouraged to contact the candidate if they wished to discuss anything further in regards to the focus group discussions. However, this option was not pursued by any of the participants.

Data Analysis

The focus group discussions were transcribed verbatim using guidelines by Müller (2006). According to Müller et al. (2006), the amount of detail included in a transcript should be governed by the purpose of the transcription and considerations of manageability. Transcribing is a time-consuming process, and therefore needs to be restricted to what is required, yet a readable transcription should provide what is required without too much detail to distract the reader. In this study, the main purpose of transcription was to capture the content of what was discussed in the focus groups. To achieve this, the discussions were orthographically transcribed. The orthographic layer is the core of a transcript (Müller et al., 2006). Actual words spoken, including “dialectal” speech, were transcribed. The use of symbols and conventions that could add meaning or improve understanding of a context was applied to the orthographic layer (see Figure 5.1). The symbols and conventions were consistently used throughout the transcriptions. Identification of any doubtful or unintelligible passages, noticeable hesitation or pausing, measurement of the pauses, noticeable emphasis on certain words or syllables, and changes in intonation were included because these could add meaning to the spoken
words. The accuracy of the transcripts was checked by comparing it to the audiorecordings and no discrepancies were identified. Transcripts were also sent by post or email to each participant to be verified. None of the participants contacted the candidate to request change, nor to discuss any disagreement with the contents.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falling intonation</td>
<td>“Continuing” intonation (can be slight rise or fall)</td>
</tr>
<tr>
<td>? Rising intonation</td>
<td></td>
</tr>
<tr>
<td>↑↓ A marked rise or fall on the syllable following the arrow</td>
<td></td>
</tr>
<tr>
<td>: Lengthening of the preceding sound; this may be a vowel or a consonant; for example, yeːs, or yesː. Multiple colons indicate longer duration of the sound in question.</td>
<td></td>
</tr>
<tr>
<td>Baby Underscore indicates a marked added emphasis on the syllable(s) so indicated</td>
<td></td>
</tr>
<tr>
<td>NO Capital letters indicate that a syllable or word is produced with markedly increased (loudness) as compared to the surrounding speech</td>
<td></td>
</tr>
<tr>
<td>(.) A pause of one beat, or the time interval from one stressed syllable to the next. Multiple periods within parentheses, for example (..) indicate pauses of multiple beats.</td>
<td></td>
</tr>
<tr>
<td>= Latching, (i.e., the end of one utterance is followed immediately by the beginning of another, without overlap, but also without any pause).</td>
<td></td>
</tr>
<tr>
<td>[ Beginning of overlapping speech</td>
<td></td>
</tr>
<tr>
<td>* End of overlapping speech</td>
<td></td>
</tr>
<tr>
<td>x Unintelligible syllable. Multiple x, for example, xxx indicate three unintelligible syllables. Unstressed syllables are marked by “x” and stressed syllables as “X.”</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.1 Symbols and conventions used in the transcriptions. Adapted from Müller (2006).

The candidate transcribed and read the transcript for Focus Group 1 before Focus Group 2 was conducted. This was to enable the candidate to get a sense of what could be expected in the second focus group and also to generate ideas of what further information needed to be obtained to verify or clarify the present information.

Transcripts from both focus groups were analyzed using a content analysis approach (see Downe-Wamboldt, 1992; Graneheim & Lundman, 2004; Krippendorff, 2004). Currently, two principal uses of content analysis are evident: a quantitative approach, which is often used in, for example, media research, and a qualitative approach often used in, for example, nursing research and education (Graneheim & Lundman,
In this study, a qualitative approach of exploring textual data through transcripts was taken.

After the focus group discussions were transcribed and checked, the transcriptions were printed and read in the order the discussions were conducted. A general sense of the information obtained was gained through the first reading. General ideas and impressions were noted down. Both transcripts were then read again several times and compared. With each reading, the candidate identified emerging categories and codes from the discussions. Although some categories (e.g., Knowledge of Early Stuttering and Praising Fluent Speech of a Child Who Stutters) were expected from the interview guideline used, some unexpected categories emerged from the data. These categories included Factors Influencing the Practice of Praise, Children’s Responses and Reaction Towards Praise, and Attitudes and Beliefs Towards Early Stuttering.

The data were then divided to fit under the categories. Words and phrases were grouped together, and if necessary, “reduced.” Reduction of words and phrases involved crossing out repetitions and similar words and phrases so as to produce a list of headings that account for all the data in the transcripts (Burnard, 1996).

A manual approach to coding and categorizing data was used. This allowed the candidate to create categories and develop each category and subcategory from the transcripts. Mind-maps were used to facilitate understanding of the data. The opinions, attitudes, and beliefs of the participants were analysed, and comparisons were made between both focus groups and between the participants wherever relevant.

After initial categorizing and coding, the transcripts were read through again to ensure that each meaningful or informative utterance was categorized appropriately and to identify any that might have been omitted. Together with the transcripts, the categories and codes were then discussed by the candidate, her supervisors, and colleagues who were not involved in the study. Any ambiguity was clarified. Suggestions were considered and categories and subcategories were collapsed, refined, or adjusted. The final categorization and coding was discussed between the candidate and her supervisors.
Establishing rigour.

In qualitative research, the concepts of credibility, dependability and transferability have been used to describe various aspects of trustworthiness or rigour (Graneheim & Lundman, 2004; Koch, 1994). *Credibility* refers to the extent to which participants and readers of the research recognize the lived experiences described in the research as being similar to their own. If there is recognition of the phenomenon simply by reading about it in the transcripts or research reports, then credibility has been achieved (Roberts & Taylor, 1998). *Dependability* is the degree to which data change over time, including the changes made by a researcher during the analysis process. The extent to which judgments about similarities and differences of content are consistent over time can be addressed with an open dialogue within the research team (Graneheim & Lundman, 2004). *Transferability*, which is also known as *fittingness*, refers to the extent to which a study’s findings fit or can be transferred to other groups or contexts outside the study settings (Graneheim & Lundman, 2004; Roberts & Taylor, 1998). Even though these aspects are often described separately, Graneheim and Lundman (2004) suggested that they should be viewed as intertwined and interrelated.

Qualitative researchers have developed strategies to establish trustworthiness of research. Among these strategies are triangulation (Guba, 1981; Patton, 2002), member checking (Graneheim & Lundman, 2004; Guba, 1981; Sandelowski, 1993), peer debriefing (Guba, 1981), the use of thick description (Guba, 1981) by showing representative quotations from the transcribed text (Graneheim & Lundman, 2004), collection of referential adequacy materials (Guba, 1981), and seeking agreement among coresearchers and experts (Graneheim & Lundman, 2004). The strategies used in this study are summarized in Table 5.2 and described in the section that follows.

Patton (2002) presented four kinds of triangulation to verify and validate qualitative analysis: (a) methods triangulation, (b) triangulation of sources, (c) analyst triangulation, and (d) theory or perspective triangulation. *Methods triangulation* involves using different data collection methods to check consistency of research findings. *Triangulation of sources* refers to using different data sources at different times and by different means within the same method. *Analyst triangulation* involves using multiple
Table 5.2

*Strategies Implemented to Ensure Trustworthiness and Rigour*

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description or Example of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangulation</td>
<td>Two focus groups in which participants were different were conducted at different times in order to obtain data from different sources. Initial codes and categories of the findings were presented to other researchers who were not involved in the study. These codes and categories were discussed and suggestions were considered.</td>
</tr>
<tr>
<td>Member checking</td>
<td>Respective transcripts were sent by email or post to each participant for verification.</td>
</tr>
<tr>
<td>Peer debriefing</td>
<td>The flow of the study was constantly discussed with the candidate’s supervisors to ensure data collection and analysis were trustworthy and rigorous.</td>
</tr>
<tr>
<td>The use of thick description</td>
<td>Verbatim quotations from the participants were used throughout presentation of the data to support an idea or category.</td>
</tr>
<tr>
<td>Collection of referential adequacy materials</td>
<td>Audiorecordings of both focus group discussions were safely kept to ensure that the contents of the transcripts could be verified at any time and that any disagreement could be clarified.</td>
</tr>
<tr>
<td>Seeking agreement among experts</td>
<td>Supervisors who were experienced in qualitative research assisted and advised on research design, procedures, data analysis, and interpretation to ensure trustworthy and rigorous findings.</td>
</tr>
</tbody>
</table>

analysts to review research findings whereas *theory* or *perspective triangulation* refers to using multiple perspectives or theories to interpret data.

The candidate used triangulation of sources during this study as one of the methods to establish trustworthiness and rigour. This was achieved by conducting two focus groups, in which participants were different, at different times, in order to obtain data from different sources.

Some aspects of analyst triangulation were also employed. The candidate presented the initial codes and categories of the findings to other researchers who were
Chapter 5 Malaysian Parents’ Responses and Reactions

not involved in the study. These codes and categories were discussed and suggestions were considered.

The candidate also used member checking as one of the strategies to establish trustworthiness and rigour. Member checking is a procedure used within qualitative research methods to ensure that participants validate their contributions to the overall study, as a source of determining the trustworthiness of the study (Roberts & Taylor, 1998). This was achieved by sending respective transcripts by post or email to each participant of the focus groups to be verified.

Another strategy used by the candidate was peer debriefing. In this method, the candidate regularly held discussions with her supervisors to ensure that data collection and analysis were trustworthy and rigorous.

The use of thick description by showing representative quotations from the transcribed text was also applied by the candidate to establish trustworthiness and rigour of the data. Verbatim quotations from the participants were used throughout presentation of the data to support an idea or category.

Collection of referential adequacy materials was also used as a strategy by the candidate to establish trustworthiness and rigour. This strategy refers to the collection of films, audiorecordings, videorecordings, or other “raw” data items against which findings or interpretations could later be tested (Guba, 1981). In this study, the candidate audio recorded the focus group discussions. Audiorecordings of both focus group discussions were safely kept to ensure that the contents of the transcripts could be verified at any time and that any disagreement could be clarified.

One last strategy used by the candidate was seeking agreement among experts. Sandelowski (1998) questioned the use of outside experts to certify research findings in which they were not involved. According to Sandelowski (1998), “Knowledge in qualitative inquiry often is said to come from deep immersion with data, profound commitment to purpose, and prolonged engagement with research participants, none of which characterizes the outside expert’s typical activities” (p. 467). However, experts can serve as “advisors, trouble-shooters, and peer debriefers” (Sandelowski, 1998, p. 470) and are useful in assisting with research designs, procedures, analysis, and interpretive
moves. This study did not involve the use of an “outside expert” to validate the findings. However, the candidate obtained advice and guidance from her supervisors who were experienced in qualitative research to ensure that the study’s design suited the purpose of the study, and that data collection and analysis were carried out in a way to strengthen the trustworthiness of the data.

Findings

Findings are presented through the use of quotations from the participants. These quotations were selected from the transcripts based on their relevance to each developed topic. All quotations are in italics. Quotes in participants’ Malaysian English were maintained for authenticity, particularly the suffix “lah.” Interpretations are made when necessary to aid understanding of a non-Malaysian reader.

To facilitate readability, minor editorial changes were made. Redundant sections of quotations and some fillers such as “ah,” “um,” “huh,” and “you know” were removed. Some symbols and conventions used during transcriptions to indicate “latching,” the beginning and ending of overlapping speech, and lengthening of a preceding sound or vowel were also removed. Care was taken to ensure that these changes did not alter any underlying message. Square brackets ([ ]) were used to insert words or glossing of excerpts that might aid the flow and comprehension of the text. Quotes from Focus Group 1 participants are coded as FG1 following a pseudonym for each participant. Quotes from Focus Group 2 participants are coded as FG2 following a pseudonym for each participant (see Table 5.1 for the pseudonyms).

Findings are presented in three sections. The first section describes categories relating to early stuttering. The categories are: (a) knowledge of early stuttering, (b) attitudes and beliefs towards early stuttering, and (c) parents’ responses and reactions if their child has a speech problem or stutters. The second section describes categories relating to praise for desirable behaviours. The categories include: (a) how praise is given, (b) the contexts in which praise occurs, (c) the frequency of praise, (d) factors
influencing the practice of praise, and (e) children’s responses and reactions towards praise. The third section, which links early stuttering and praise, contains categories such as: (a) praising a child who stutters, and (b) praising fluent speech of a child who stutters.

On Early Stuttering

Knowledge of Early Stuttering

All three participants from Focus Group 2 clearly indicated their low level of knowledge when asked what they know about early stuttering. All three participants (Eve, Tammy, & Tony, FG2) expressed that they [did] not know much (Tammy, FG2) although Eve had an adult friend who stammers.

On the cause of early stuttering.

One participant from Focus Group 2 thought that stuttering could be caused by an illness. This was because the friend she knew started [stammering] apparently when he was about three because he was ill, had really high fever and after that, he couldn’t talk properly (Eve, FG2). Eve added that they [people in general] had believed that the stuttering was because of fever.

Another Focus Group 2 participant thought stuttering occurs because children were imitating the stuttering of someone they knew: I don’t know much about stuttering but maybe they imitate somebody else (Tammy, FG2). Another participant had never heard (Tony, FG2) what might cause stuttering.

Some participants expressed that they would probably blame [themselves] first (Eve, FG2) if their child stuttered and believed that it is my fault (Tammy, FG2). Although knowledge of stuttering was not specifically explored in Focus Group 1, one participant believed that it was a problem with the tongue (Yale, FG1).
Attitudes and Beliefs Towards Early Stuttering

Participants held a range of attitudes and beliefs towards early stuttering. Stuttering was viewed by a participant just like [a] handicap yet not significant like the mentally retarded but something you must help (Noor, FG1).

According to some other participants, stuttering is normal in their culture (Yale & Farah, FG1) and we [they] don't treat that stuttering as a handicap (Yale, FG1) or as a disadvantage (Farah, FG1). Farah reported having come across a child who stutters and never thought about it as a problem until the focus group discussion was held: When because my nephew came to the house, we never look at him as a problem, but since because today you mention about that, then I remember about him, I never thought that. In spite of looking at it as something normal and not a problem, Farah agreed with Noor that it is something you must help (Noor, FG1).

One participant reported treating stuttering as a joke (Yale, FG1). Another reported malu [shame] (Wendy, FG1) although it was not elaborated whether the shame is associated with the participant being ashamed that the child stutters or whether the child feels shame when he or she stutters. Some participants expressed feeling sorry (Azimah & Noor, FG1) for the child who stutters and that they need more help and care (Noor, FG1).

All participants in Focus Group 2 agreed that early stuttering would be a problem and that most parents are anxious when there’s a slight abnormalities[ty], wondered what’s wrong, and take them to the doctor (Eve, FG2). Tammy (FG2) believed that early stuttering will be a big social problem because it will like affect them [children who stutter] when they go school. Tammy (FG2) elaborated:

Because when they want to express themselves, they’re not fast enough and they will feel frustrated...And their friends will [be] playing jokes on them. I think it will be quite difficult for them to go out.

In spite of differing opinions among some participants in the way they view stuttering, either as a handicap or something normal, the majority believed that stuttering
is something that should be addressed. How this is done is further explored in the following findings, where participants expressed their responses and reactions to a hypothetical scenario of a child of theirs having a speech problem and/or, specifically, stuttering.

Parents’ Responses and Reactions If Their Child Has a Speech Problem or Stutters

All but two participants from both focus groups reported that they had never come across a child who stutters. One participant reported that from experience with her current school-aged child whom she reported as having problem speaking and stammers during his preschool years, she had addressed his problem by keep[ing] him focused, look[ing] at him, ask[ing] him to look at us [parents], [asking him to] repeat the sentences again, and correct[ing] the sentences (Eve, FG2). Eve elaborated that instead of make[ing] an issue out of it, we [the parents] just got him to stop by saying “Can you say it? Can you say it properly?”

Another participant who had experience interacting with a child who stutters acknowledged raising her voice and being impatient: “Nak a-a-a-a [Want a-a-a-a-]..” “Air [Water]!” “Ah, air, air, air, air [Ah, water, water, water, water],” because maybe I was not that patient (Farah, FG1).

Farah (FG1) also gave an example of completing the child’s stuttered word: “What do you want?” “R-r-r-r-roti [bread]” he will say. So I say, “Roti dengan apa?[Bread with what?]” “Ka-ka-ka-ka...” “Kaya²!” “Aah, kaya, kaya, kaya,” he said like that. Farah (FG1) further gave an example of rushing the child in his sentence, Come on, say fast! Now, “What is this?!?”

Other participants gave a range of responses about what they would do, with responses ranging from a possibility in praise[ing] them [children who stutter] more (Noor, FG1) although Noor elaborated further that in a real situation, we might not [praise], treating stuttering as a joke (Yale, FG1), surprise[ing] them [children who stutter] (Noor, FG1) in the midst of their stuttering, to asking the child to repeat (Betty, FG1) the stuttered words. Yale and Farah (FG1) agreed with Noor in regards to the
Chapter 5 Malaysian Parents’ Responses and Reactions

“surprise” approach. This approach refers to being suddenly loud when a child is stuttering: *When you have a stuttering person, children or even a person, you’ll always say, “HAH!”* (Noor, FG1). This approach was linked to the *Malay culture* by Noor (FG1) who also acknowledged that it is an approach that could be the *opposite [of] the Western approach* (Noor, FG1), although it was not elaborated what the Western approach could have been.

In general, when facing a child who has a speech problem or who stutters, most participants had *no idea* (Noor, FG1; Tony, FG2) or *experience* (Tammy, FG2) on what to do or how they should respond or react. They *won’t know what to do actually* (Eve, FG2) or how to *handle it* (Tammy, FG2).

From this section, it was clear that participants’ level of knowledge of early stuttering was minimal. Participants had no knowledge that early stuttering could be treated therapeutically and guided by a professional who is trained, such as an SLP. Most of them had ideas of their own or a general belief (such as the “surprise” approach) in responding or reacting to a child who stutters. In the next sections, findings in regards to participants’ opinions and views on praise in general and as part of an approach that could help children who stutter are presented.

**Praise**

*How Praise Is Given*

Most participants agreed that praising is usually not done *openly* (Tammy, FG2) and that Malaysians *are not open with our praises* (Farah, FG1). Farah believed that it is because *Malaysian culture is in such a way that we are not open with our praises and try to have hidden praises whereas, the Western culture, I can see the difference is that they’re [Westerners are] very open* (Farah, FG1). Farah also gave an example in which, when a person is praised, the recipient would negate it in a humble sort of way:

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3 Local jam
For example, if a person says, “You’ve got a good voice,” “Oh, ya, I know.” But in the Malaysian culture, we’ll say “Oh, tak adalah [no-lah], oklah.” (Farah, FG1)

In this example, the “no-lah” refers to the recipient negating the praise given with a humble no, meaning that the voice is not good, followed by an “oklah,” acknowledging that the voice was just “ok” and not “good.”

On the linguistic expressions of praise, examples given by most participants were limited to good (Azimah & Chong, FG1; Tammy & Tony, FG2), very good (Betty, FG1; Tammy, FG2), and pandai [clever] (Azimah, FG1). Some examples by participants were acknowledgment and encouragement rather than direct praise:

You have cope up very well. (Betty, FG1)

You are a very responsible person. (Betty, FG1)

Keep it up. (Chong, FG1)

One participant’s example of praise could even be seen as criticism or teasing, except that the parent’s tone indicated that she was pleased:

Usually with Kevin⁴ a lot more pretend you know, “Oh, you can do that, ah. Oh, wow! What is that? Oh, I didn’t know you can do it.” (Eve, FG2)

Some participants (Yale, Noor, & Farah, FG1) agreed that they never use (Yale, FG1) the word beautiful (Yale, FG1) to describe their children. For Farah (FG1), it was enough to just mention how many children a person has without describing them as beautiful. In other words, praise was not given for an attribute of nature that a person is born with.

⁴ This and other children’s names have been changed for confidentiality purposes.
Praise was generally given as a contingency to something the child had done. However, for one participant, praise also meant prompt[ing] the child to evaluate themselves as not just motivation but also as encouragement for them to do better, or for them to continue doing (Farah, FG1). In addition, praise, for Farah, was also used to initiate a behavior or to manipulate her child to do something desirable: “Ok, ok, Angah, are you [a] good girl?” Then she says “yes,” “Ok, if you’re good girl, you’re [going to] do this.” So she will say, she’ll do it that time (Farah, FG1).

In summary, the findings above indicated that praise was generally not given in an open manner and limited in its expressions. Praise, for some participants, was viewed differently, and referred more to forms of acknowledgment or encouragement. Praise was not only given contingent to a desirable behaviour but, for one participant, to encourage or initiate a desirable behaviour.

The Contexts in Which Praise Occurs

One participant reported praising children when they do things right (Chong, FG1). Most participants gave examples of praising their children when they have done something desirable such as say[ing] ABC until Z (Tammy, FG2), keep[ing] the toy (Tony, FG2), go[ing] to [the] toilet (Tammy, FG2), and having done their homework (Betty & Wendy, FG1).

The Frequency of Praise

Findings indicated that for most participants, the practice of praising their children is not a frequent occurrence. For one participant, it was once in a while and depends on my mood (Azimah, FG1). However, Azimah also contradicted herself, saying that she do[es] praise [her] children a lot, although the slight hesitancy detected suggested that the former statement was closer to reality than the latter. The latter seemed to be a defensive statement to the former.

Some participants agreed that younger children can be praised but if done too often, it becomes a routine (Chong, FG1) and they could get bored (Wendy, FG1) or tired.
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(Wendy, FG1) if praise was given everyday (Wendy, FG1). Wendy felt that every time must change the way [of reinforcing or praising]. Another participant would need to praise him [her child] a lot more than the other because he had a very short attention span (Eve, FG2).

Participants reported not remember[ing] to praise after a while [because] we are so used to it [the desirable behaviour] (Tammy, FG2), conscientiously try[ing] to remember to do that [praise] because it is true that sometimes we forget, and try [emphasis] to praise more (Eve, FG2). One participant was not sure (Tony, FG2) how frequently he would praise his child if he does it at all.

In summary, the expressions and words used by the participants such as “once in a while,” “never,” “forget,” “not remembering,” and “try” indicated clearly that the practice of praise is an infrequent practice in the participants’ daily routine. In the following section, findings on factors influencing this practice are presented, providing some reasons as to why praise is not a frequent practice and also, why it is not expressed in a more open manner.

Factors Influencing the Practice of Praise

Some participants (Farah & Yale, FG1) agreed that Malaysian culture is in such a way that we are not open with our praises and try to have hidden praises (Farah, FG1). Farah elaborated that we [Malaysians] are very much constrained to the culture. For one participant, it’s in our culture not to praise, although more people are more open now (Azimah, FG1).

Some part of religion (Yale, FG1) was also brought up as a factor that could impede the practice of praise, although it was not elaborated further how this was so. Some participants reported upbringing (Tammy & Eve, FG2) as a factor influencing praise. Tammy (FG2) remarked: I think because from my very traditional Chinese upbringing, we don’t really like praising our children. For one participant, it’s more like a family upbringing in raising children (Eve, FG2). As religion and upbringing are
influenced by culture, culture could be said to be the main factor influencing the practice of praise for most participants.

One participant remarked that families from urban areas are more open and receptive to changes and development and establishment but families who stay in the suburban or rural areas are not as open and receptive to changes compared to urban families so maybe the approach [praising] has to be a little bit different (Farah, FG1). Farah elaborated that families from the suburban and rural areas don’t praise their children and she don’t hear it at all.

However, one participant believed that the younger children, even though [from the] suburban or rural areas, they also do praising [praise] their children because there’s pressure from the TV (Noor, FG1). Noor elaborated that this is because they are educated before, but they stay out [in the rural areas]. This participant’s remark indicated that the media (i.e., television) could influence the practice of praise in the younger generation regardless of where they live. It also indicated that families who live in the rural or suburban areas are not necessarily uneducated, implying that education is a more important factor that could influence the practice of praise than geographical location.

In spite of the factors that are reported to impede the practice of praise, some participants believed that the younger generation already begin to adopt the Westerner approach (Noor & Farah, FG1) and will do it [praise] (Farah, FG1). Another participant reported that the older generation seems[ed] to be a little bit more, not that expressive compare to the present generation (Eve, FG2) indicating that there exists a possibility that the present generation are more expressive and that praising could become a more frequent practice, or perhaps for some young parents, has already become more common. For participants who reported that they do praise their children, the following findings present how their children responded or reacted to praise.

Children’s Responses and Reactions Towards Praise

One participant reported that sometimes [emphasis], not everyday, they [the children] will accept it [the praise] (Wendy, FG1). Some children don’t bother (Noor,
FG1) about being praised while some pays attention, feels good about it in a way, very encouraged by it, and will make a little more effort (Eve, FG2). In addition, it is believed that praising does not work for children in their teen years as compared to younger children (Wendy, FG1).

In spite of being an infrequent practice influenced by the factors discussed and by children’s different responses or reactions to praise, it is believed that the main purpose of praise is to motivate them [the children] (Noor, FG1). Praise is believed to be very important and it acts as a positive reinforcementlah when you praise a child (Chong, FG1). Having viewed praise in a positive way, the following section presents findings linking early stuttering and praise. In this section, participants’ views and opinions on praising children who stutter in general and praising fluent speech in children who stutter are presented. Findings in regards to participants’ comfort levels in praising under a professional’s advice are also presented.

**Early Stuttering and Praise**

**Praising a Child Who Stutters**

A number of participants (Yale, Farah, Noor, & Wendy, FG1) agreed that they cannot plan (Yale, FG1) when to praise because it is unnatural (Wendy, FG1). In spite of this, Yale (FG1) believed that praising children who stutter will encourage them to speak more. Theoretically, Noor (FG1) will praise more this kind of children [children who stutter] from the normal one but if we’re in a real situation, we might not.

Most participants agreed that they would praise in English and Malay (Wendy & Noor, FG1), despite the fact that one participant spoke Mandarin with her children. Praising in both English and Malay was termed by one participant as dwibahasa [dual language] (Noor, FG1). Some participants (Farah, Azimah, Noor, & Betty, FG1; Tammy, FG2) gave examples similar to those presented earlier, such as good (Farah, Azimah, Noor, & Betty, FG1; Tammy, FG2) and pandai [clever] (Azimah & Noor, FG1). However, there were also additional examples given such as well done (Noor & Chong,
FG1), clever (Tammy, FG2), and excellent, bagus [good], and baik [good] (Farah, FG1). Farah (FG1) refers to her examples as mostly those basic words. One participant gave an example that was more of a form of encouragement, and acknowledgment, I will say “You do better than Mummy, who don’t know how to do (Wendy, FG1). In a few cases, participants gave examples of responses that seemed to reduce the positive impact of praise after praise is given: I think I will say that “Good.” And then, uh, “You can do better.” That kind of wordslah (Betty, FG1). The “do better” concept after praise seemed to imply that the child had done well but at the same time could do better than what was achieved. Although this “do better” concept could be taken as encouragement to do better, it could also lessen the impact of praise. In another example, the impact of the praise word “pandai (clever)” also seemed to lessen, when it was said in the context of “pun,” which could indicate teasing or sarcasm, depending on the tone in which it was given: Pandai [clever] pun. (Azimah, FG1).

Participants also discussed using forms of expressions that are rewarding to a child: If he responds to “cool,” so when you tell him even if you say “excellent” to him, “excellent” doesn’t mean xx. “Cool” means like “Wah!” (Chong, FG1). Chong also elaborated that it’s good to know what makes your son tick. Another participant gave an example of acknowledging and following the child’s lead with warmth and enthusiasm: So he likes to say, “Is it cool” I say, “Yeah, you’re cool.” So he said, “I’m cool.” He’s so happy when you say he’s cool. From the “way to go,” “Way to go, hah, Mummy!” “Ah, way to go” (Farah, FG1). Farah also gave an example of her husband’s way of encouragement, which was, writing new words or phrases and encouragement for their child to pin or keep in his journal book, or pin on the wall. However, it was not elaborated further whether this mode of encouragement was contingent or to initiate desirable behaviours. In addition, this example did not refer to a child who stutters but for his own children in general, although the remark suggests that the same could be applied to children who stutter.
Chapter 5 Malaysian Parents’ Responses and Reactions

Praising Fluent Speech of a Child Who Stutters

One participant believed that a professional like a speech therapist gives more praises and is more alert in the way the child [who stutters] responses and gives quite quick feedbacks maybe because of that professional obligation that she [the therapist] has whereas at home, it’s more of a personal obligation (Farah, FG1). However, as a parent, praising fluent speech of a child who stutters will have to depend on the time that I have (Farah, FG1).

One participant believed that praising stutter-free speech of a child who stutters should be encouraging to her [child who stutters] because she would know that when she’s not stuttering, that’s the correct way to talking (Tammy, FG2). Tammy also suggested encourage[ing] praise and do[ing] it differently so they [children who stutter] will know that this type of praising is for [fluent speech], but of course we don’t have any experience.

Eve (FG2), however, reported providing the same [general praise] but also gave an example of what was more a critical reflection of the child: I suppose then we would also compare “Eh, how come you can speak like this, x [unintelligible syllable] you can speak like this later?”... I suppose that might be the wrong approach.

As part of a parenting practice, most participants have suggested that praising children who stutter is unnatural. In spite of that, the majority of participants agreed that they will do anything that will help the child to be better (Farah, FG1). In Focus Group 2, participants’ comfort levels with the practice of praise and acknowledging stuttering was specifically explored because it was felt that, although participants in Focus Group 1 were generally receptive and willing to accept the practice of praise, their comfort levels with the practice might not parallel this acceptance. To verify this and also to obtain a general sense of participants’ comfort level with the LP approach in general, participants in Focus Group 2 were asked how comfortable they would feel about praising stutter-free speech and acknowledging stuttering when advised by a professional. None could express how comfortable they would feel. However, most (Tammy, Eve, & Tony, FG1) agreed that they would follow the advice (Tammy, FG1) because it is quite natural [to follow a
professional’s advice] (Tammy, FG2). Tammy elaborated that they have to be very mindful every time to praise the kid because we’re not so used to praising. We are brought up without praising.

In summary, participants reported that they would praise when advised to do so by a professional. However, factors that could impede the actual practice were emphasized again. Implications are discussed.

Discussion

The aim of this study was to gather information about Malaysian parents’ responses and reactions to the practice of praise that forms a very important component in the LP. Analysis of findings suggested an overall positive response and reaction, with indications of some factors to consider. These are discussed in the following sections.

Education and Awareness

It was shown that most participants, including those who have had more than 11 years of formal education, lacked knowledge of early stuttering and stuttering in general. Participants did not know that early stuttering could be treated in the early years to prevent the negative long-term effects. One participant who had come across a child who stutters did not view it as a problem. Another reported that early stuttering could pose a problem, especially when children go to school. Most participants agreed that early stuttering should be addressed but findings indicated that none knew how to respond or react appropriately towards a child who stutters.

Studies in other developing countries such as Kuwait (Al-Khaledi, Lincoln, McGabe, Packman, & Alshatti, 2009), Brazil (De Britto Pereira, Rossi, & Van Borsel, 2008), and China (Jin, Zhao, Zhang, & Van Borsel, 2001) have shown that in general, the public are mostly aware of stuttering but knowledge of stuttering is limited. For example, most people were poorly informed of the current theories and perspectives on the nature
Chapter 5 Malaysian Parents’ Responses and Reactions

and cause of stuttering (Al-Khaledi et al., 2009; De Britto Pereira et al., 2008; Jin et al., 2001).

A lack of knowledge and awareness highlights the need to educate parents and increase their awareness about early stuttering and the importance of treating it in the early years. In this context, preschools can play a very important role. They can provide information to parents about early stuttering, its identification and where to seek help. Thus, although Study 1 and 2 did not investigate preschool teachers’ knowledge or perceptions of early stuttering, preschool teachers can play a very important role in disseminating information about early stuttering. Preschool teachers can be taught how to identify early stuttering and provide information for parents of preschoolers who stutter. This calls for more SLPs in Malaysia to provide services to educate preschool teachers about early stuttering. Seminars or brochures should also be placed in hospitals and clinics to disseminate information about early stuttering and the importance of early treatment.

_Praising in the Malaysian Context_

Findings obtained from the focus group discussions have indicated that praising is not a common or regular parenting practice for Malaysian families. Culture was frequently raised as a factor that could impede the practice of praise. Although each population group may have its own tradition or culture to which they strongly adhere, it is not wrong to say that some practices or traditions are intertwined or shared across cultures. Sometimes it is difficult to tell from which culture a practice or tradition originates. Some practices or traditions have simply become a general Malaysian or Asian practice. This includes the practice of praise, which, from the focus group discussions, has been indicated to be an uncommon practice among most Malaysian parents.

Some participants reported providing praise followed by the concept to “do better.” This is consistent with the literature reported in Study 1 (see Yunus, 2005, Chapter 4) although this concept was not displayed by any participant in Study 1. In
addition, one focus group participant also gave an example of negating praise, which is also consistent with Yunus’ (2005) description of Asian parenting.

One Chinese participant reported greater willingness to praise younger children compared to older ones. This finding is consistent with comments by Stevenson, Chen, and Lee (1992), who in writing about parent-child interaction in Chinese families, suggested that Chinese parents seldom demonstrate affection to older children, and are reluctant to praise them directly when they are pleased with their behavior. However, for children in their elementary years, parents most often rely on verbal praise and encouragement. They also may treat them to a special event or give them a gift. This implies that praising might come easier for some parents if it is given to younger children. Although Study 1 did not compare whether more praise was given to younger children than older ones, results supported this implication in that all but one parent praised their children, suggesting that praise for younger children were more common than thought.

Examples of praise that were given were limited in their expressions. This correlates with the findings from Study 1, in which parents who were observed during interactions with their preschool children provided only a small range of words or phrases when praising their children. Code-switching to English was found to occur during praising for parents who were not speaking English with their children in Study 1. This is consistent with the findings from the current study in which participants, whose predominant languages at home with their children were not English, also gave examples of praise in English, in addition to praise in the Malay language. This implies that praising in English comes more naturally as compared to other languages, even though equivalent words or expressions of praise do exist in languages such as Malay and Mandarin.

*Praising in the Context of the Lidcombe Program*

Participants generally showed willingness to accept praise as part of the approach used in the LP, if advised by a professional that it is beneficial for children who stutter. A
few participants had also shown an understanding of what praise can do to increase desirable behavior or to motivate their children to behave well.

In addition, some participants indicated how the present generation are influenced by Western practices and are more accepting of new approaches and thus would be willing to try out new approaches for the benefit of their children. Thus, although praising might not be naturally practiced in most families, there are indications that parents are willing to learn how to carry out the practice if guided by a professional and with the rationale that it will be for their children’s benefit.

Implications and Limitations of This Study

Findings from Study 1 and 2 imply that parents might take a longer time to learn how to praise more variedly and frequently to effectively increase stutter-free speech in the LP. Clinicians might need to provide more demonstrations and monitor parents closely to make sure that parents learn this skill in order to carry out the LP. This potentially means that Stage 1 (treatment phase) of the LP could take a longer time to be completed. This finding appeared to be consistent with the study by Latterman et al. (2008) in that it was suggested that a longer duration to complete Stage 1 could have resulted from cultural differences. In this study, the LP was administered for 16 weeks to 23 German preschoolers who stuttered. During the 16-week period, only three children completed Stage 1 of the LP. These children took 12, 11, and 10 clinical sessions respectively to complete Stage 1. According to the authors, the role of praise in the upbringing of a child may differ between Anglo-Australian and German-speaking countries. German parents and teachers were reported “to be comparatively sparse in the application of praise” (Lattermann et al., 2008, p. 61). The German study supports the implications from Study 1 and 2, in that treatment time could be expected to be longer than the median treatment time of 11 clinical visits to complete Stage 1 (Jones, Onslow, Harrison, & Packman, 2000; Kingston, Hubert, Onslow, Jones, & Packman, 2003). Rousseau et al. (2007) reported a median of 16 clinical sessions for 29 preschoolers, and Miller and Guitar (2009) reported a median of 17 clinical sessions for 15 preschoolers who were administered the LP. The authors from both studies suggested that the most
likely reason why the Jones et al. (2000) and Kingston et al. (2003) reported a median of only 11 clinical visits was because these studies did not use the criterion of having to achieve three consecutive sessions of low levels of stuttering before entry into Stage 2 as compared to the later studies. If this criterion was applied, the median would have been higher than the 11 clinical visits reported. Nevertheless, in implementing the LP for Malaysian families, the candidate must keep in mind the cultural factor that could influence treatment time.

In an adaptation of the LP, parents may need to learn not to minimise or negate praise by adding on any implications of “doing better.” A list of “dos and don’ts” may need to be prepared for parents, to train them in what to say and what not to say. Clinicians and parents will need to explore a variety of expressions of praise, in different languages if necessary, to enable implementation of praise that is acceptable for both parents and children. These changes will all form part of the ongoing process of problem-solving between the clinician and the parent.

This study has its limitations, in that the sample size was small and not every population group was included. For example, Indians and many other indigenous groups, such as the Dayaks, Kadazans, and Orang Ulus, in other parts of Malaysia were not included in this study. This study is also limited to parents from urban areas with good education, with all but two parents having had more than 11 years of formal education. Differences in ethnicity, occupational backgrounds, and educational levels across participants in both focus groups could also have influenced the data obtained during the group interaction. It is suggested that future studies should sample these variables in a more systematic way. For example, a focus group could consist of parents from only a specific ethnic background with a certain level of education instead of having a wide variation to control the influence that the variables might have on the participants.

Another limitation of this study was procedural variations due to circumstances explained in the methodology. One participant did not fulfil the sampling criteria (parent who did not have a child in the preschool years) yet was included in the study. This difference could perhaps have influenced the other participants’ thoughts and opinions during the focus group discussion although there was no obvious indication of such an
influence. Another variation was that some participants arrived late during the first focus group discussion. This could have influenced the data collection because they had not participated in the initial part of the discussion but was only conveyed on what was going on.

Another limitation of this study is that participants were parents of normally developing preschool children. They could have been selected from parents of preschoolers who have stuttering or alternatively, parents of preschoolers with communication or physical disabilities instead of from the general population of parents of preschoolers. This is because findings could perhaps reflect more closely the responses of reactions of parents of preschoolers who stutter in regards to the LP. Participants in this study were from the wider population of parents of preschoolers because the candidate had anticipated that it would be difficult to obtain parents of preschoolers who stutter (as shown in Chapter 7) due to most parents’ lack of awareness in early stuttering intervention. The candidate acknowledges the limitation in the participant sampling and suggests that in the future, selection criteria for focus group participants should match more closely the population being studied. Purposeful sampling would be more appropriate than convenience sampling for such studies in the future. In spite of these limitations and the fact that these findings from this study cannot be generalized to the entire Malaysian population, the information obtained provided the candidate with a view on how some Malaysian parents could respond and react to the Lidcombe Program.

**Conclusion**

Although it is not the general Malaysian culture to praise, the implementation of the LP is still highly possible in the Malaysian context. This is because parents from the focus group discussions indicated a willingness to praise in therapeutic contexts. Learning how to praise more frequently and in more varied expressions is not meant to change this practice in a particular culture, but merely to correctly implement a therapeutic procedure beneficial for preschool children who stutter. As such, parents can
choose to carry out these procedures only when working to increase stutter-free speech and not for any other nonspeech areas.

Clinicians would need to discuss with parents how to make the LP comfortable for both the parent and the child. Parents could also choose to code-switch with their praise as long as any changes made are effective in increasing stutter-free speech. These implications are consistent with those arising from Study 1, in that parents could be taught to fit in with the LP and/or that the LP could be adapted to suit Malaysian families.

In practicality, both assumptions are essential to optimize successful implementation of the LP. In other words, parents should be taught the core approach of the LP by teaching them how to provide praise more frequently, and some adaptations could also be suggested to ensure that the parent and child are comfortable when going through the LP. These adaptations are part of the considerations to be discussed in the following chapter.
CHAPTER 6
CONSIDERATIONS FOR IMPLEMENTING THE LIDCOMBE PROGRAM IN MALAYSIA

Introduction

Results and findings from Study 1 and 2 respectively give information upon which to base an adaptation and implementation of the Lidcombe Program (LP) with Malaysian families. These proposed adaptations include a strategy to ensure an adequate frequency of praise during the beginning of Stage 1 of the LP, varied verbal expressions for praise and code-switching, incorporation of positive nonverbal responses, and avoidance of certain responses during the implementation of the LP. The proposed adaptations have been combined in a single document and appended (see Appendix G). However, it should be noted that the core components of the LP would still be administered, with the considerations above to be incorporated whenever necessary.

In addition to consideration regarding verbal contingencies (VCs), issues related to the prevalence of bilingualism in Malaysian culture need to be considered. These include: (a) choice of language/s during treatment, (b) generalization of treatment to the untreated language/s, and (c) collecting speech samples from bilingual children who stutter. These issues will be discussed in later sections of this chapter.

Proposed Adaptations of the Lidcombe Program in the Malaysian Context

Strategy to Ensure Adequate Frequency of Praise

Results from Study 1 suggested that praising and acknowledging a child positively is not a frequent practice among Malaysian parents. Findings from Study 2.
provided further support that praising is not a regular practice, with participants indicating that cultural factors may play a role in influencing this practice. In spite of its relatively low frequency, praising was still found to be present in Malaysian parents’ repertoires and participants indicated that they would attempt to carry out any approach that will benefit their children.

A strategy clinicians can use to guide parents to increase the frequency of praise for stutter-free speech is a demonstration of a 1:1 ratio of praise to each stutter-free utterance during a short structured conversation. However, this fixed 1:1 ratio of praise to stutter-free utterance should not be employed throughout Stage 1. This is because this fixed ratio can lead to praise being given in an unnatural way or becomes automatic to the point of it being ineffective. In addition, children on a fixed schedule of reinforcement, such as fixed-ratio and fixed-interval of reinforcement, show less persistence and faster response extinction than children on variable schedules (Santrock, 2006). This is because they are able to predict when they will be reinforced and thus, will be more likely to only behave desirably during a certain period of time. In comparison, children on variable schedules of reinforcement do not know when exactly they receive reinforcement and thus, will try as much as possible to behave desirably at all times. Therefore, it is suggested that a fixed ratio should be used only during the first few training sessions to highlight to the parents the relatively high frequency of praise, until the parent shows the skill to praise at an optimal level to increase their child’s stutter-free speech.

*Varied Verbal Expressions and Code-Switching*

Results from Study 1 also found that parents used a limited range of words and often code-switched to English when providing praise. Verbal expressions used in English were also limited. Findings from Study 2 lend further support to these findings: Examples of praise given by the participants were limited and often expressed in English. In the LP, the expression of praise not only should be varied but needs to be specifically delivered as a verbal contingency for stutter-free speech (see Onslow et al., 2003; Packman et al., 2008). A list of verbal expressions (praise and acknowledgment) in English and Malay are produced (see examples in Text Box 6.1) to assist clinicians and
parents to vary the expressions used for stutter-free speech. Variation of expression prevents saturation for parents and children when praising and acknowledging children’s stutter-free speech. Similar lists have been developed to assist with responding to children’s stuttered speech (see examples in Text Box 6.2). These lists are provided merely as a guide and can be expanded or modified by parents, clinicians, and children. If a child speaks more than one language or dialect, parents can also respond accordingly in other language/s or dialect/s, to promote generalization across languages or dialects.

Text Box 6.1

*Responses for Stutter-Free Speech in English and Malay (italics)*

<table>
<thead>
<tr>
<th>English</th>
<th>Malay</th>
</tr>
</thead>
<tbody>
<tr>
<td>That was smooth.</td>
<td><em>Lancar adik cakap tadi.</em></td>
</tr>
<tr>
<td>That was good talking.</td>
<td><em>Bagus adik cakap tadi.</em></td>
</tr>
<tr>
<td>I heard very smooth words. That was great.</td>
<td><em>Ibu dengar adik cakap tadi lancarlah.</em></td>
</tr>
<tr>
<td>That was great talking, no bumps at all.</td>
<td><em>Adik cakap lancarlah tadi, tak tersekat-sekat.</em></td>
</tr>
<tr>
<td>That was smooth talking, no bumps at all.</td>
<td><em>Bagus adik cakap tadi, tak tersekat-sekat.</em></td>
</tr>
<tr>
<td>That was really smooth! Well done!</td>
<td><em>Lancarnya adik cakap.</em></td>
</tr>
</tbody>
</table>

Text Box 6.2

*Responses for Stuttered Speech in English and Malay (italics)*

<table>
<thead>
<tr>
<th>English</th>
<th>Malay</th>
</tr>
</thead>
<tbody>
<tr>
<td>That was a bit bumpy.</td>
<td><em>Tersekat-sekat adik cakap tadi.</em></td>
</tr>
<tr>
<td>I heard a bump.</td>
<td><em>Agak tersekat adik cakap tadi.</em></td>
</tr>
<tr>
<td>That was a bit stuck.</td>
<td><em>Adik cakap tersekat sikit.</em></td>
</tr>
<tr>
<td>That was difficult for you to say.</td>
<td><em>Adik cakap tersekat sikit.</em></td>
</tr>
</tbody>
</table>
Chapter 6 Considerations for Implementing the Lidcombe Program in Malaysia

Results and findings from Study 1 and 2 respectively indicated that parents often code-switch to English when praising their children. Therefore, clinicians should allow parents to code-switch when praising, as long as the praise continues to focus specifically on stutter-free speech. This is because code-switching is a common occurrence in Malaysian families who speak more than one language. The phenomenon of speaking more than one language, known as bilingualism, will be discussed in a later section. Text Box 6.3 contains some examples in which parents code-switch when praising their children.

Text Box 6.3

Examples of Code-Switching When Praising Stutter-Free Speech

<table>
<thead>
<tr>
<th>English</th>
<th>Malay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good. Lancar adik cakap tadi. (Good. That was smooth talking)</td>
<td>Good. Tak tersekat-sekat adik cakap. (Very good. You did not get stuck).</td>
</tr>
</tbody>
</table>

Positive Nonverbal Responses

In Study 1, parents gave positive nonverbal responses such as a nod or a smile when interacting with their children. It is proposed that these positive gestures could act as a complement to the positive verbal contingencies required in the LP, to further reinforce the responses or to facilitate the implementation of verbal responses. However, whenever possible, these nonverbal gestures should not be used alone because verbal responses as suggested in the lists are thought to be the components essential to increasing children’s stutter-free speech (e.g., see Harrison et al., 2004; Onslow et al., 2003; Packman et al., 2008).

Avoidance of Responses That Could Minimize or Negate Praise

Findings from Study 2 confirmed that some Malaysian parents have a tendency to minimise or negate the full positive impact of praise by using the “do better” concept after praise (Yunus, 2005). This concept seemed to imply that the child had done well but at the same time could do better. Although this “do better” concept could be taken as an
Encouragement to do better, it could also lessen the positive impact of praise. Thus, to ensure that the LP is administered effectively, a list of examples of what should not be said after praising or acknowledging a child’s stutter-free speech is also proposed (see examples in Text Box 6.4).

Text Box 6.4

*Responses in English and Malay (italics) That Should Not Be Said After a Praise*

<table>
<thead>
<tr>
<th>English</th>
<th>Malay (italics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>That was smooth.</td>
<td>Lancar adik cakap tadi.</td>
</tr>
<tr>
<td>You can do better next time. DO NOT SAY THIS.</td>
<td><em>Cakaplah macam tu. JANGAN MENYEBUT KATA-KATA SEDEMIKIAN.</em></td>
</tr>
<tr>
<td>That was good talking.</td>
<td>Bagus adik cakap tadi, lancar.</td>
</tr>
<tr>
<td>But I think you can do much better too. DO NOT SAY THIS.</td>
<td><em>Lain kali cakaplah macam tu. JANGAN MENYEBUT KATA-KATA SEDEMIKIAN.</em></td>
</tr>
<tr>
<td>That was smooth talking, no bumps at all.</td>
<td>Lancar adik cakap.</td>
</tr>
<tr>
<td>Why can’t you speak like that all the time? DO NOT SAY THIS.</td>
<td><em>Pandai pun cakap macam tu. JANGAN MENYEBUT KATA-KATA SEDEMIKIAN.</em></td>
</tr>
<tr>
<td>I heard very smooth words. That was great.</td>
<td></td>
</tr>
<tr>
<td>But you can do better next time. DO NOT SAY THIS.</td>
<td></td>
</tr>
</tbody>
</table>

**Bilingualism and Stuttering in Malaysia**

At least a hundred languages/dialects are spoken in Malaysia (David, 2003) in a population of approximately 28 million people. It can be said that most Malaysians, if not all, speak at least two languages, as Malay, the national language, is the language of instruction in state schools while English is a compulsory subject. In addition, Mandarin or Tamil are used in vernacular schools as the language of instruction, and Malay and
English are taught as compulsory subjects. Students from such a schooling system are generally able to speak three languages.

Bilingualism can be defined as the regular use of two or more languages (Grosjean, 1982, 1985). A bilingual person, therefore, is an individual who is able to use two languages whereas a multilingual person is an individual who is able to use three or more languages for specific needs and purposes. Bilinguals and multilinguals around the world (including the candidate) will affirm the fact that being balanced and native-like or having equal proficiency and competency in two or more languages is rare. In this thesis, bilingual and multilingual will be used interchangeably and be defined in the broadest sense, referring to individuals who speak more than one language, regardless of their level of proficiency or frequency of use.

Over 50% of the world’s population is bilingual (Grosjean, 1982; Harding & Riley, 1986) and it is estimated that over 6,900 languages are currently spoken worldwide (Gordon, 2005). Thus, if 1% of the general population, in which 50% or half are bilinguals, stutter at any point in time, there would be millions of bilingual people worldwide who stutter. Yet the literature regarding bilingualism and stuttering is limited compared to that relating to stuttering of monolingual people. In Malaysia, it is common for SLPs to work with bilingual children who stutter. There are some issues that SLPs, administering the LP with Malaysian families, will need to consider when working with these children. These issues are: (a) choice of language/s during treatment, (b) generalization of treatment to the untreated language/s, and (c) collecting speech samples from bilingual children who stutter.

Choice of Language/s for Treatment

Nwokah (1988) proposed three theoretical possibilities of manifestation of stuttering in bilingual people. One possibility is that stuttering occurs in one language but not the other; another possibility is that stuttering occurs in both languages with speech behaviour patterns that are similar in each language; or stuttering could occur in both languages but vary from one language to another. It is extremely rare to find a case where
a bilingual person stutters only in one language (Nwokah, 1988) although severity of stuttering might vary between languages.

Van Borsel et al. (2001) provided an overview of 12 reports on stuttering in bilingual people, of which nine consist of single cases and three of 4, 10, and 16 subjects respectively. Nine reports described manifestation of stuttering in both languages, with seven reporting varied manifestation of stuttering in each language. The two other reported similar pattern of manifestation in both languages. Three reports described manifestation of stuttering in only one language, which according to the author, is “rather exceptional” (p. 188). Two of these reports were from Van Riper (1971) in that one was an anecdotal remark from a Canadian psychiatric worker visiting Southampton Island’s population and another was an excerpt from a letter by a Pakistani who stuttered to Van Riper. According to the Canadian psychiatric worker, “none of the present population stutters except for the Hudson Bay Company clerk who stutters in English but not in Eskimo” (p. 5). In this case, identification of stuttering is questionable because the psychiatric worker, untrained in identification of stuttering, could have misidentified or overidentified stuttering as there were no further descriptions on how stuttering was identified. In the letter excerpt, the Pakistani who spoke English wrote that he “rarely stammer while reading” (p.189) the Holy Book that was written in Pahlevi Script, a language he did not understand. In this case, stuttering was not manifested in a particular condition (i.e., reading) and in a language not understood. Thus, to say that the Pakistani was a bilingual who stuttered in the one language he understood is debatable. The third report by Dale (1977) was of four adolescent participants (mean age = 13 years) whose “stuttering” was identified by their parents. In this study, it was hypothesized that what was identified as stuttering actually began as a normal dysfluency and that due to communicative pressure to retain knowledge and fluency of their mother tongue (Spanish), the participants began to show dysfluency in Spanish while English was fluently spoken. In this case, the reported “stuttering” might not actually be true stuttering as there was no further descriptions or verification of stuttering by an SLP although the participants were referred to a speech pathologist for their “dysfluent speech” (p. 311). In summary, manifestation of stuttering in only one language for bilingual people is
questionable as there is no research evidence documenting this phenomenon. Out of the 12 reports in Van Borsel et al.’s (2001) overview, only 2 reports were of preschoolers, for whom the manifestation of stuttering varied between languages. It can be concluded that in most cases, stuttering behaviours manifested differently in the different languages, and that bilingual people who stutter in one language and not the other, are exceptional. Determining the manifestation of stuttering in all spoken languages during assessment could influence clinical decision-making about which language to treat first. The first decision is whether to treat the languages concurrently or simultaneously.

When possible, it might be considered ideal to treat stuttering in both languages of bilingual children. This is assuming that the child stutters in both of the languages s/he speaks.

It could be more efficient to treat one language and monitor the other language(s) for generalization of stuttering reductions. Indeed, the little evidence available (Roberts & Shenker, 2007; Shenker, 2004) suggests that generalization to nontreated languages does occur for some preschoolers. Furthermore, it is often not possible to treat all languages because the relevant languages are not shared by the clinician.

Where more than one language is shared by the child, parent, and clinician, some clinicians and parents will decide to provide treatment in the child’s predominant language (i.e., the language that is more frequently and/or commonly used). This is usually the child’s first language. Making this choice is common because the predominant language is the language shared by the child and the parent, and the parent is the primary agent of therapy. For example, Shenker, Conte, Gingras, Coursey, and Polomeno (1998) treated the predominant language of a bilingual preschool child who stutters first before treating the other language. Other clinicians and parents may opt to use the language that has a higher frequency of stuttering because of the impact stuttering has on the language. However, the parent could also choose to carry out treatment in the child’s other language/s at home.

When a decision is made to treat only one language, the other untreated language/s must also be monitored to ensure that generalization of treatment occurs. The issue of generalization is discussed in the following section.
Generalization of Treatment to the Untreated Language(s)

Although it is suggested that it is ideal to treat both languages of a bilingual child who stutters (Roberts & Shenker, 2007), it could be difficult to find a clinician who speaks the same set of languages spoken by the child. This raises a concern about what happens to stuttering in the untreated language(s). In addition, a decision to treat in a particular language is not a decision to ignore the other language(s), even for clinicians who speak all of the child’s languages. However, in clinical practice, it is practical to treat in one language and monitor the untreated language(s) to see if generalization occurs. According to Van Borsel (2006), monolingual treatment would mean that one counts on generalization of treatment to the untreated language. According to the author, there could be three possible results: (a) similar improvement in both languages, (b) less improvement in the untreated language, or (c) more improvement in the untreated language than in the treated language. A fourth possibility exists: No generalization in the untreated language at all. If generalization occurred, no additional action would be needed.

In the event that generalization to the untreated language did not occur, consideration of when to start treatment in the untreated language would be necessary. The absence of research data means that guidelines for timing are not available. One consideration would be to begin treatment in one language and if the stuttering in the untreated language remained unaltered once the treated language had shown a significant decrease in stuttering, stuttering treatment should begin in the untreated language. But what is a “significant decrease”? In discussion with her supervisors, who have vast experience in administering the LP, the candidate decided that a “significant decrease” should be within a few weeks of the parent first beginning to notice and comment on a difference developing between the two languages. If that difference persisted or increased over those few weeks, then treatment in the untreated language should be targeted.

Monitoring untreated languages for generalization necessitates collection of speech measures for both the treated and untreated languages. This will be addressed in the next section.
Collecting Speech Measures

In research, speech sample collection needs to be obtained over multiple speaking situations at each measurement occasion over a certain period of time because stuttering is known to vary over time and across speaking situations (Ingham & Cordes, 1999). This is to ensure that the speech samples obtained are valid. In other words, the samples should be representative of an individual’s speaking repertoire. In research with monolingual children, speech data beyond-clinic usually consist of conversations with a familiar and unfamiliar person (e.g., Lattermann et al., 2008; Miller & Guitar, 2009) and sometimes covert recordings (e.g., Lattermann et al., 2008; Lincoln & Onslow, 1997; Onslow et al., 1994; Onslow et al., 1990). For a bilingual or multilingual child, a possible combination of speech sampling at each measurement occasion is shown on Table 6.1

Table 6.1
Possible Combination of Speech Sampling for a Bilingual or Multilingual Child

<table>
<thead>
<tr>
<th></th>
<th>First Language</th>
<th>Second Language</th>
<th>Third Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiar Person</td>
<td>1 Sample</td>
<td>1 Sample</td>
<td>1 Sample</td>
</tr>
<tr>
<td>Unfamiliar Person</td>
<td>1 Sample</td>
<td>1 Sample</td>
<td>1 Sample</td>
</tr>
<tr>
<td>Covert Recording</td>
<td>1 Sample</td>
<td>1 Sample</td>
<td>1 Sample</td>
</tr>
</tbody>
</table>

However, considering practicalities for parents, it would be unrealistic to request six or nine samples from parents of bilingual children who stutter at each data collection point, for either research or clinical purposes. In addition, it has not been reported in the literature (e.g., Lattermann et al., 2008; Lincoln & Onslow, 1997; Onslow et al., 1994; Onslow et al., 1990) that covert recordings would yield more valid data as compared to overt recordings. Thus, speech samples for bilingual children who stutter, should represent each language, with a familiar and /or unfamiliar person (depending on the child’s natural conversational contexts), in a variety of contexts. For example, if a bilingual child speaks Mandarin at home with her family and English in school with her teachers, then speech samples would consist of samples in Mandarin with the family
members and in English with the teachers in school. It would be unnatural to request an English sample from home and vice versa. If a child speaks three languages, speech samples would be in each of the languages, and with familiar and/or unfamiliar people, depending on the child’s natural conversational contexts. In other words, speech samples for the bilingual child who stutters should cover all languages the child speaks to enable monitoring of all languages, particularly the untreated language/s. This would facilitate decision-making on whether the untreated language/s would or would not need to be treated.

In conclusion, SLPs who treat bilingual children who stutter will need to consider all the issues discussed here to ensure that these children are well monitored and are able to achieve near-zero levels of stuttering across all languages.

**Summary**

It is important to keep in mind the considerations that have been discussed in this chapter when implementing the LP with Malaysian families. However, these considerations are merely suggestions and recommendations. In the following chapter, these considerations are administered whenever necessary during the implementation of the LP with four Malaysian families. Chapter 7 further describes how the proposed adaptation and considerations are incorporated in the LP for each participant and their families. Ongoing changes or other issues that arise are also discussed and documented. The progress of each participant and treatment outcomes are also described, and implications of the results are discussed.
CHAPTER 7
THE LIDCOMBE PROGRAM IN MALAYSIA: 4 CASE STUDIES

Introduction

As stated in previous chapters, early stuttering treatment in Malaysia is underdeveloped. Therefore, it is important to introduce an efficacious early stuttering intervention for Malaysian preschoolers, to prevent chronic stuttering that is detrimental to many aspects of life. In Chapter 3, it was established that the LP has best evidence of success for preschoolers. However, due to its origins and development in Australia, there is a possibility that its implementation might not be congruent with Malaysian families. This is because the LP utilizes parents as its main therapy agent and one of its core components involves praise, which was suggested to be an uncommon practice for families in Malaysia.

Results from Study 1 indicated that most participants did praise their children, although with relatively low frequency and limited expressions. This implied that the practice of praise was present in at least some parents’ parenting repertoire and that parents could be trained to utilize the skill in the LP. Findings from Study 2 supplemented results from Study 1, indicating that praise was indeed not a common practice, although parents were willing to carry out the practice under professional advice if it was beneficial for children who stutter. In addition, results and findings from both studies suggested some adaptations that could be incorporated during the implementation of the LP to facilitate good outcomes. These proposed adaptations were presented in Chapter 6, together with some issues that need to be considered when working with bilingual children who stutter.

The aim of Study 3 was to implement the LP with Malaysian families, taking into considerations all the issues and findings that have been discussed in Study 1 and 2. Chapter 7 describes four clinical cases of the LP with four preschool
children in Kuching, Malaysia. The candidate implemented the LP, incorporating proposed adaptations only when necessary for facilitating desirable outcomes. Outcomes are presented and implications of this study are discussed.

**Methodology**

**Research Design**

Study 3 is carried out using single case designs (SCD). SCD is chosen to evaluate the effects of an intervention with a single individual, and it is a particularly useful design in clinical settings (Minichielo, Sullivan, Greenwood, & Axford, 2004). It is also an appropriate design because case studies are exploratory and meant to demonstrate potential therapeutic effects in a new treatment (Botterill & Kelman, 2010; Robey, 2004), and the LP is a new treatment that has not previously been trialed in Malaysia.

**Participants**

Participants were four preschool children ranging in age from 3 years 3 months to 4 years 9 months at the beginning of the pretreatment phase. Participants were conveniently recruited from the public and private hospitals and preschools in Kuching, Malaysia. The nonprobability convenience sampling used in this study is most justifiable in situations when the number of elements within a population is unknown or cannot be individually identified (Minichiello et al., 2004), such as in this study: There were no data regarding prevalence and incidence of early stuttering in Malaysia and the number of cases available was unpredictable.

The selection criteria for participation in the study were that:
1. the parent and an SLP agreed that the child was stuttering;
2. the child was between 3 years 0 month and 6 years 0 month. Three years was chosen as the lower limit because of anecdotal evidence that children younger than 3 years do not have the ideal cognitive development for the treatment to be effective (Jones et al., 2001). Six years was chosen as the upper age limit because data suggest that the procedure may lose some of its effectiveness for older children (Jones et al., 2001; Lincoln, Onslow, Lewis, & Wilson, 1996);

3. the clinician, the parent, and the child spoke a common language;

4. the child was reported to have stuttered for a minimum of 6 months before the beginning of treatment. This was to reduce the possibility of the child undergoing natural recovery;

5. a minimum of 2% syllables stuttered (%SS) was measured in speech samples recorded 1 month and 1 week pretreatment. Children with a stuttering frequency of less than 2.0% SS were to be excluded because they required only slight improvement to be deemed recovered (Jones et al., 2001), and such a small improvement could be due to variability in stuttering. For bilingual children, this criterion was applied to speech samples of both or all languages.

6. the child had had no treatment for stuttering in the previous 6 months.

In Kuching, there was only one public hospital, one private speech and hearing clinic, and one speech centre that provided speech-language pathology services. The candidate contacted the SLPs in these places and participants were recruited from the SLPs’ waiting lists. The candidate also contacted paediatricians or child specialists from three private hospitals and 13 private clinics for possible referrals of children who stutter. Brochures about early stuttering and the LP were placed in these hospitals and clinics (see Appendix H). For families who might be interested in the LP, information about whom to contact were included in the brochures.

The candidate also contacted 16 private preschools and scheduled appointments to meet teachers at the preschools. The candidate gave the teachers information about early stuttering and the LP, in the form of brochures and verbal information. The teachers were provided with information about how to identify children whom they think might be
stuttering. The teachers were to inform parents of these children about the LP and whom to contact if they were interested to verify their child’s stuttering and seek intervention for their child. The preschool teachers were also requested to disseminate brochures to other parents about early stuttering and the LP, with the possibility that some parents might identify stuttering in their children and wish to seek intervention.

Six children were identified as potential participants. Two participants were referred by the SLP from the public hospital, one was referred by a child specialist from a private hospital and three were referrals from parents who obtained information from their children’s preschool teachers. Parents of these children were contacted and given verbal and written information about the research. Parents were also given consent forms (see Appendix H) and an opportunity to talk to the candidate to ask questions about the study and their participation. Those who consented to participate were informed that they could withdraw from the research at any time.

Of the six potential participants, two did not fulfill selection criteria for participation in the study. One girl, 3 years 9 months old, had a decrease in stuttering from more than 2.0 %SS at 1 month pretreatment to less than 1.0 %SS during the 1-week pretreatment speech samples. The parents decided that the child did not need treatment and withdrew from the study. The other participant, a boy, 4 years 10 months old, was excluded from the study because measures of %SS during his 1-month and 1-week pretreatment samples were less than 2.0 %SS. The parents of this child were asked to monitor the child’s speech and to contact the candidate if there was any increase in the child’s stuttering.

The remaining four participants, who fulfilled the selection criteria and whose parents consented to participate, included three girls and one boy. A form requesting information about each child and family was completed by parents to enable appropriate planning and management of each child (see Appendix H). Table 7.1 summarizes descriptive information of the participants and additional information follows.
Table 7.1

Descriptive Information of Participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Age at initial assessment (years; months)</th>
<th>Language spoken</th>
<th>Assessment data (%SS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jia Yi</td>
<td>Female</td>
<td>3;09</td>
<td>Mandarin (L1(^a)) English (L2(^b))</td>
<td>3.3</td>
</tr>
<tr>
<td>Ruby</td>
<td>Female</td>
<td>3;11</td>
<td>Mandarin (L1)   English (L2) Malay (L3(^c))</td>
<td>- (^e)</td>
</tr>
<tr>
<td>Kee Loong</td>
<td>Male</td>
<td>4;09</td>
<td>Mandarin (L1)   English (L2)</td>
<td>2.7</td>
</tr>
<tr>
<td>Mei Mei</td>
<td>Female</td>
<td>3;03</td>
<td>English</td>
<td>14.8</td>
</tr>
</tbody>
</table>

*Note.* \(^a\) L1 indicates first language acquired. \(^b\) L2 indicates second language acquired. \(^c\) L3 indicates third language acquired. \(^d\) These figures are not pretreatment research data but clinical measures made during the first contact between the candidate and the participant, when a diagnosis of stuttering is confirmed. \(^e\) No within clinic measure was made for Ruby who was reticent to speak during assessment.

**Participant Jia Yi\(^5\)**

Jia Yi was 3 years 9 months old when she was assessed for stuttering by the candidate. She was referred by her mother who had obtained information about early stuttering from the child’s preschool teacher. According to her mother, Jia Yi had been stuttering since she started to speak: between 1 to 2 years of age. Jia Yi’s mother reported that her stuttering increased when she started to produce phrases and sentences, and when speaking to adults. Jia Yi’s mother also reported that Jia Yi’s paternal uncle stuttered in adulthood.

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\(^5\) Names of all the participants have been changed for the purposes of confidentiality.
During assessment, which was conducted in Mandarin, an online measure of 3.3\%SS was obtained. Jia Yi presented moderate to severe stuttering with repetitions of syllables, words and phrases, blocks, and interjections such as “umm”. Long pauses between words were also noted. Jia Yi also presented a high frequency of audible inhalations that were considered part of her stuttering\(^6\). The candidate and Jia Yi’s mother agreed that Jia Yi was stuttering. Jia Yi’s mother reported that she had not had any previous stuttering treatment. She also reported not having previously heard of the LP.

Jia Yi’s main caregiver was her mother. During the daytime, Jia Yi attended preschool. Jia Yi’s first language was Mandarin. When Jia Yi started preschool about 7 months previously, she started to learn English. According to her mother, Jia Yi used Mandarin at home and English in preschool. The choice of language chosen for treatment was Mandarin, the predominant language used between Jia Yi and her mother, who carried out the treatment at home. Mandarin was also a language that the candidate spoke. Jia Yi had an elder sister who was 8 years old.

**Participant Ruby**

Ruby was 3 years 11 months old when she was assessed for stuttering by the candidate. She was referred by a paediatrician from a private hospital. According to her aunt, who spent most time with the child, Ruby had been stuttering for approximately 5 months or more\(^7\). Her aunt reported that there was no change in Ruby’s stuttering over that time. Ruby’s aunt also reported no known family history of stuttering.

During assessment, which was conducted in English, Ruby spoke occasionally in one or two words utterances, which according to her aunt, was not representative of her daily speech beyond-clinic. Ruby’s aunt also reported that she was shy in nature. An online measure of \%SS was therefore not obtained. Ruby’s aunt reported repetitions as her typical stuttering behaviours beyond-clinic. The candidate requested beyond-clinic samples to verify the presence of stuttering. These samples later formed part of Ruby’s 1

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\(^6\) By three stuttering specialists to whom Jia Yi’s pretreatment audiorecordings were sent.

\(^7\) As there was a 1 month pretreatment data collection period, Ruby had stuttered for 6 months or more prior to the beginning of treatment. This complies with selection criteria no. 4 (pg. 145).
month pretreatment research samples, which are described in the *Data Collection* section. In these samples, Ruby presented with mild to moderate stuttering. The candidate and Ruby’s aunt agreed that Ruby was stuttering. Ruby’s aunt reported that she had not had any previous stuttering treatment. She also reported not having previously heard of the LP.

Ruby’s main caregiver was her aunt. During the daytime, Ruby attended preschool. Ruby’s first language was Mandarin which she spoke with her parents, siblings and aunt. Her second language was English which she spoke with her aunt and at preschool. Ruby had started preschool 8 months earlier. Her third language was Malay which she spoke only with the maid. The choice of language chosen for treatment was English, the predominant language used between Ruby and her aunt, who carried out the treatment at home. Ruby had an elder sister and elder brother who were 10 years and 14 years old respectively.

*Participant Kee Loong*

Kee Loong was 4 years 9 months old when he was assessed for stuttering by the candidate. He was referred by the local SLP. The speech-language pathologist had diagnosed him with stuttering, describing his stuttering behaviours as “prolongations on first phonemes, especially when excited and with difficult phonemes or blends such as /sk/.” The SLP had also diagnosed frontal lisping, with descriptions of slight tongue protrusions with words beginning with /s/ and /n/. Kee Loong had attended one session with the SLP approximately 8 months before participating in the research. During that session, the SLP reported having modeled slow speech rate and “easy talk” versus “hard talk” to Kee Loong. The SLP provided information about stuttering and counseled the parents on acknowledging his stuttering. During the same session, the SLP targeted Kee Loong’s articulation, focusing on fricatives /s/ and /sh/. Kee Loong’s parents were expected to provide therapy at home. However, Kee Loong’s parents reported that he refused to cooperate with his mother for any speech therapy at home and his stuttering became more severe. Therefore, no therapy was provided for approximately 8 months prior to Kee Loong’s referral to the candidate.
Assessment was conducted in English. During the first half of the assessment, Kee Loong spoke mostly in one or two words utterances. In the second half of the assessment, Kee Loong’s brother joined him in the clinic and he began to talk and stutter more. Online measure of %SS yielded a measure of 2.7 %SS but his parents reported that his stuttering was more severe beyond-clinic. Kee Loong’s pretreatment research recordings presented moderate to severe stuttering with repetitions of syllables and prolongations (see p. 157). The candidate and Kee Loong’s parents agreed that Kee Loong was stuttering. Kee Loong’s parents reported that he had not had any previous stuttering treatment. They also reported not having previously heard of the LP. His mother reported that Kee Loong’s maternal uncle stuttered in adulthood.

During the daytime, Kee Loong attended preschool. In the afternoon, he was placed at a daycare centre. Kee Loong’s first language was Mandarin which he spoke with his parents and his elder brother, who was 8 years old. His second language was English which he also spoke with his family members and at preschool. Kee Loong began attending preschool more than a year earlier. Kee Loong’s parents preferred to use English during treatment although Mandarin was his first language. English was preferred because it was also the language Kee Loong spoke at preschool.

Participant Mei Mei

Mei Mei was 3 years 3 months old when she was assessed for stuttering by the candidate. She was referred by her mother who had obtained information about early stuttering from the child’s preschool teacher. According to her mother, Mei Mei had been stuttering for more than 1 year. Her mother had thought that Mei Mei would outgrow the stuttering but she reported that Mei Mei’s stuttering had increased in severity. Her mother reported that, in the beginning, Mei Mei had shown frustration but after a while, she just pushed through her stutters. Mei Mei had two elder siblings, one brother and one sister, aged 6 and 5 years respectively. Her mother reported that both of them had teased Mei Mei about her stuttering. Mei Mei’s mother also reported that Mei Mei’s maternal granduncle stuttered in adulthood.
During assessment, which was conducted in English, an online measure of 14.8%SS was obtained. Mei Mei presented severe stuttering with repetitions of syllables and blocks. The candidate and Mei Mei’s mother agreed that Mei Mei was stuttering. Mei Mei’s mother reported that she had not had any previous stuttering treatment. She also reported not having previously heard of the LP.

Mei Mei attended preschool in the morning. In the afternoon, her maternal grandmother looked after her and her siblings. Mei Mei spoke English both at home and at preschool. She did not speak any other language.

**Treatment Procedures**

The candidate, who is a qualified practicing SLP in Malaysia, implemented the LP with the four participants. The candidate is able to speak English, Mandarin, Malay, and a few Chinese dialects such as Hokkien and Teochew. Prior to this study, the candidate had attended a 2-day LP workshop and had treated two preschool children who stuttered using the LP during her training in Australia. These clinical sessions had been observed by the candidate’s research supervisor and frequent discussions were held to ensure integrity of the treatment procedures.

Although there were adaptations and considerations that were proposed in Chapter 6 for implementation of the LP with Malaysian families, the candidate implemented the LP as closely as possible according to the standard procedures. Thus, the LP, which has been described in Chapter 3, was implemented. The candidate verbally introduced to the caregivers the basic concepts of the LP. The candidate also gave all caregivers the English brochures for extra information as all of them could understand English. All were willing to try the LP with their children. The candidate trained the parents how to provide verbal contingencies (VCs) for stutter-free and stuttered speech during structured and unstructured conversations. The candidate also taught parents how to assign daily severity ratings for their child’s stuttering severity (for more details, see Onslow et al., 2003; Packman et al., 2008). The adaptations proposed in Chapter 6 were incorporated into the standard treatment procedures of the LP only when parents reported
having difficulty with a certain component or when participants plateaued in their progress. These adaptations were incorporated to facilitate good outcomes for the participant. The Results sections present the adaptations that were incorporated into the standard treatment procedures for each participant, describing what was needed and why. All sessions in the clinic were videorecorded. All sessions were face-to-face sessions in the clinic except for Mei Mei’s sessions. The first 30 sessions were carried out in the clinic and the remaining sessions were carried out via Skype. This was because the candidate was required to return overseas to continue her studies and was unable to continue providing face-to-face clinic sessions. Implications of this procedural variation are discussed in the later section of Discussion.

For participants who were bilingual, the candidate decided to treat only one language and monitor the other language/s. To monitor the untreated language/s the candidate requested speech samples in the language/s from time to time during Stage 1 to enable monitoring of treatment generalization to the untreated language/s. These were in addition to the speech samples obtained for the purpose of this research study, which are described in the Data Collection section.

**Data Collection**

The primary outcome data were percent syllables stuttered (%SS) and syllables per minute (SPM). These were measured from beyond-clinic speech samples obtained from each participant in everyday speaking situations when treatment procedures were not implemented. Speech sampling is described in the following.

*Speech Sampling*

Beyond-clinic speech samples were collected at seven data points for each participant: 1 month pretreatment, 1 week pretreatment, immediately post-Stage 1, 1 month post-Stage 1, 3 months post-Stage 1, 6 months post-Stage 1, and 12 months post-Stage 1. These speech samples were recorded using a Sony digital voice recorder model ICD P620.
For Mei Mei, who was monolingual, two speech samples were obtained at each point of data collection: one with a familiar person, and one with an unfamiliar person. For the participants who were bilingual, participants’ mothers and Ruby’s aunt were instructed to obtain one speech sample for each of their child’s spoken languages, with a familiar and/or an unfamiliar person, in various contexts. However, speech samples obtained at each data collection point usually contained more than one language per sample. In other words, code switching and/or code-mixing occurred extensively. Therefore, the candidate accepted speech samples with mixed languages, provided each spoken language of the child was represented at each data collection point. This was because speech samples should reflect a child’s true speech repertoire and to request a child to speak only in a particular language with a particular conversational partner would be unnatural, especially if the conversational partner was able to speak in more than one language with the child.

All participants’ mothers and Ruby’s aunt were instructed to obtain a minimum of 10 minutes conversational speech for each speech sample. The actual duration of samples ranged from 3 minutes to 16 minutes.

Data collection for Jia Yi and Kee Loong is complete. Ruby withdrew from the study after 13 clinic sessions because her aunt became gravely ill and required extensive medical care for some months. Although Ruby’s stuttering at that time was at a near-zero level, Ruby had not yet entered Stage 2 of the LP. However, the candidate obtained speech data 2 ½ months after withdrawal. The available data obtained are presented and discussed in later sections. At the time of writing, data collection for Mei Mei is ongoing. Two final speech samples will be obtained when Mei Mei completes her data collection at 12 months post-Stage 1. However, sufficient data have been collected to enable some discussion of progress and outcomes. A total of 48 speech samples have been obtained at the time of writing. Table 7.2 summarizes the number of speech samples obtained, excluded, and reported for each participant.
Table 7.2

<table>
<thead>
<tr>
<th>Participant</th>
<th>Number of Samples Obtained</th>
<th>Number of Samples Excluded</th>
<th>Number of Samples Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jia Yi</td>
<td>15</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Ruby</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Kee Loong</td>
<td>15</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Mei Mei</td>
<td>12</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48</strong></td>
<td><strong>6</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>

For Jia Yi, 15 speech samples were obtained, including an extra sample during the 3 months post-Stage 1 data collection point. However, measures from two samples obtained at 3 months post-Stage 1 were excluded because the samples contained fewer than 300 syllables each. For Ruby, six samples were obtained: two samples were obtained at each pretreatment data point collection (a total of four) and two were obtained 2 ½ months after withdrawal. Measures from two samples were excluded because the samples contained fewer than 300 syllables each. For Kee Loong, 15 samples were obtained, including an extra sample at the 1-week pretreatment data collection point. Measures from one sample obtained immediately post-Stage 1 were excluded from the research because it was not a baseline speech sample in that Kee Loong’s mother gave VCs during this sample. For Mei Mei, 12 samples were obtained. Mei Mei completed data collection up to 6 months post-Stage 1. Measures from one sample during 6 months post-Stage 1 were excluded from the research because it was not a baseline speech sample in that Mei Mei’s mother gave her VCs during this sample.

**Speech Measurement**

The candidate coded all 48 speech samples and randomly ordered the samples before burning them to DVD. The DVD was given to the primary rater. The primary rater
was a final year speech-language pathology student from the National University of Malaysia who was independent and blinded to the purpose of this research program. The rater could speak English, Mandarin, and Malay. The rater did not have any experience in measuring %SS and SPM. Thus, the rater undertook a measurement training program with the candidate before commencing to make measures for this study.

During the training program, the candidate used short samples ranging from 20 seconds to 3 minutes in duration to train the rater to measure %SS and SPM. These samples were samples of the participants from home during Stage 1, which were not research data. The rater was instructed to measure %SS and SPM of an entire sample with an electronic button-press counter-timer. This device simultaneously records stutters, syllable counts, and accumulated speaking time, from which it calculates %SS and SPM. After each sample was measured, comparisons were made between the candidate’s and the rater’s measures. Underidentification and overidentification of stutters by the rater were discussed. If SPM did not approximate the candidate’s rating, the candidate reminded the rater to replicate the child’s speech rate as closely as possible. The sample was measured again. When the rater was able to demonstrate agreement with the candidate with the short duration samples, samples of more than 4 minutes in duration were given to the rater for further training. When the rater had demonstrated differences of 5% or less with him/herself and the candidate in terms of %SS and SPM measures of identical samples, the rater was considered ready to measure the research samples.

A form was given to the rater to report the measurements. This form also included a column in which the rater could write comments or remarks about samples, such as noisy background, poor quality samples, or being unable to differentiate between the participant and another child or sibling talking (see Appendix I).

**Reliability.**

One month after measuring the samples, 10 (approximately 20%) of the samples were randomly selected and given to the primary rater to remeasure in order to evaluate intrarater reliability. An identical DVD was also given to the second rater in order to evaluate interrater reliability. The second rater was a practicing SLP who had working
experience of approximately 7 years. The rater was also independent and blinded to the purpose of this research program. The rater could also speak English, Mandarin, and Malay. The rater did not have any experience in measuring %SS and SPM and thus, undertook the same measurement training program as described previously. The speech samples used during the training program were the same ones used to train the primary rater. Measures of %SS and SPM made by the two independent raters are presented in Table 7.3.

Table 7.3

Measures of %SS and SPM by Two Independent Raters

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Percentage Syllables Stuttered (%SS)</th>
<th>Syllables Per Minute (SPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary Rater 1st rating 2nd rating</td>
<td>Primary Rater 1st rating 2nd rating</td>
</tr>
<tr>
<td>1</td>
<td>3.0 1.7 1.5</td>
<td>110 128 159</td>
</tr>
<tr>
<td>2</td>
<td>0.0 0.0 1.0</td>
<td>128 136 152</td>
</tr>
<tr>
<td>3</td>
<td>4.1 4.3 3.8</td>
<td>152 172 179</td>
</tr>
<tr>
<td>4</td>
<td>0.0 0.0 0.0</td>
<td>163 130 161</td>
</tr>
<tr>
<td>5</td>
<td>3.8 3.6 3.6</td>
<td>142 149 177</td>
</tr>
<tr>
<td>6</td>
<td>5.0 5.5 8.6</td>
<td>133 164 153</td>
</tr>
<tr>
<td>7</td>
<td>6.8 6.3 6.0</td>
<td>122 135 149</td>
</tr>
<tr>
<td>8</td>
<td>7.2 7.2 8.2</td>
<td>110 116 133</td>
</tr>
<tr>
<td>9</td>
<td>9.4 9.0 9.3</td>
<td>112 112 124</td>
</tr>
<tr>
<td>10</td>
<td>1.2 1.6 1.9</td>
<td>169 179 206</td>
</tr>
</tbody>
</table>
Chapter 7 The Lidcombe Program in Malaysia

For intrarater reliability, 9 out of 10 pairs of %SS data differed by less than 1.0 %SS and 1 of 10 pairs differed by between 1.1 %SS to 2.0 %SS. The correlation coefficient between the first and second rating was calculated as $r = 0.99$. This shows that the two sets of ratings strongly resemble each other, indicating satisfactory reliability. For SPM, the primary rater measured SPM at the same or faster rate for 9 of the 10 sample pairs during the second rating. Agreement on absolute values was not achieved but a correlation coefficient of $r = 0.72$ was attained.

For interrater reliability, 8 of 10 pairs of %SS data differed by between 0 %SS to 1.0 %SS, 1 of 10 pairs differed by 1.1 %SS to 2.0 %SS, and 1 of 10 pairs by 3.1 %SS to 4.0 %SS. For reasons unknown, measurement of %SS on Sample 6 differed between the two raters by more than 3.0 %SS. Nevertheless, both ratings indicated a significant level of stuttering. The correlation coefficient between the two data sets was calculated as $r = 0.91$. This shows that the two sets of ratings strongly resemble each other, indicating satisfactory reliability between the raters. For SPM, the primary rater measured SPM at a slower rate for 9 of the 10 sample pairs than the second rater. Although agreement on absolute values was not achieved, a correlation coefficient of $r = 0.81$ was attained. This result is sufficient to enable a conclusion of whether speech rate reduced following treatment.

**Stage 1 Efficiency Measures**

Two measures were made to enable an estimation of the efficiency of the LP with the three participants who completed Stage 1. These measures were (a) the number of clinic sessions for each participant to reach Stage 2, and (b) the number of weeks from the beginning to end of Stage 1.

The number of clinic sessions and weeks were determined from the clinic records. Number of weeks was determined by counting the number of days from the date of the first clinic session to the date of last clinic session and then dividing by 7, and rounding to the nearest whole number.
Chapter 7 The Lidcombe Program in Malaysia

Parent Questionnaire

At 12 months post-Stage 1, Jia Yi and Kee Loong’s mothers completed a questionnaire enquiring about their ease of implementing the procedures of the LP, what they most and least enjoyed about the program, what they might like to improve, and whether they would recommend the program to other parents or caregivers of children who stutter (see Appendix J). Questions about the ease of implementing the LP procedures were measured by a Likert scale ranging from very easy to very difficult or very easy to use to very difficult to use. Other questions required written comments by the mothers.

Description of the Adaptations Incorporated During Implementation of the Lidcombe Program

Chapter 6 outlined some potential adaptations that might be required to successfully implement the LP with Malaysian families. However, one purpose of the current study was to identify which adaptations were needed and only implement these. In order to do this, the candidate used detailed file notes supplemented by videorecorded clinic sessions to describe the adaptations that were incorporated during implementation of the LP. A count was made of the number of participants for which each adaptation was required followed by qualitative description for each participant. Results are presented in the following section.

Results

Primary Treatment Outcomes

Figures 7.1 and 7.2 depict %SS and SPM respectively for all participants, for pretreatment and post-Stage 1 phases. All participants’ outcome data are appended (see Appendix K). Two participants, Jia Yi and Kee Loong, reached the clinical criteria for completion of Stage 1. Low levels of stuttering were present in both participants’
Figure 7.1 Percentage syllables stuttered (%SS) for 4 participants during pretreatment and post-Stage 1 phases. For Mei Mei, samples obtained were with a familiar and an unfamiliar person and could be plotted separately. For the other participants, samples at each data collection point contained a mixture of languages in each sample, representing all spoken languages of each participant.
Figure 7.2 Syllables per minute (SPM) for 4 participants during pretreatment and post-Stage 1 phases. For Mei Mei, samples obtained were with a familiar and an unfamiliar person and plotted separately. For the other participants, samples at each data collection point contained a mixture of languages in each sample, representing all spoken languages of each participant.
untreated languages. Both participants maintained low rates of stuttering across languages at 12 months post-Stage 1. These stuttering reductions were achieved without reductions of speech rate. One participant, Ruby, did not reach Stage 2 of the LP. Even so, results demonstrated less than 1.0 %SS across languages 2½ months after withdrawal. One participant, Mei Mei experienced relapse during Stage 2. At the time of writing, Mei Mei’s stuttering has increased, although stuttering frequency did not approach pretreatment severity. Measures of %SS within clinic and SRs for the purposes of managing treatment are presented in Appendix L.

**Participant Jia Yi**

The LP was successfully implemented in 21 sessions for Jia Yi over a period of 24 weeks. Jia Yi’s pretreatment %SS ranged from 3.6 to 14.5 %SS. The %SS range over the 12 months post-Stage 1 period was 0.0 to 3.0 %SS. One sample immediately post-Stage 1, one at 1 month post-Stage 1, and one at 3 months post-Stage 1 had %SS at 1.1, 1.9, and 3.0 %SS respectively. However, Jia Yi achieved near-zero stuttering rates across languages at 12 months post-Stage 1. Beyond-clinic samples and Jia Yi’s mother’s report from the preschool teacher indicated low levels of stuttering in her untreated language. Speech rate did not reduce following treatment.

**Participant Ruby**

Ruby attended 13 clinical sessions over a period of 13 weeks. Ruby’s pretreatment %SS ranged from 3.8 to 6.1 %SS. However, it was noted that there was a reduction in severity between the 1 month and 1 week pretreatment data points. Although Ruby withdrew from the research before beginning Stage 2, within clinic baselines were less than 1 %SS and beyond-clinic SRs for the three last consecutive weeks were mostly 1s and 2s (see Appendix L, p. 260). At this point, when she would have entered Stage 2, Ruby was unable to continue her participation in the study because her aunt was diagnosed with a serious illness requiring immediate and extensive medical treatment. However, speech data obtained 2½ months after her withdrawal showed that stuttering
had been maintained at less than 1 %SS. Speech rate had not reduced. Speech data in each separate language could not be obtained for Ruby because Ruby naturally code-mixed and/or code-switched in her daily conversational speech with most people around her, especially her aunt, who could speak more than one language with her. These samples, parental reports and her aunt’s SRs indicated low levels of stuttering across languages.

**Participant Kee Loong**

The LP was successfully implemented in 31 sessions for Kee Loong over a period of 36 weeks. Kee Loong’s pretreatment %SS ranged from 3.8 to 8.7 %SS. The %SS range over the 12 months post-Stage 1 period was 0.0 to 1.2 %SS. One sample immediately post-Stage 1 contained 1.2 %SS. This slight stuttering increase could be due to the fact that his mother, who administered therapy at home, was away for a holiday and Kee Loong was without therapy for a short duration of time. However, Kee Loong achieved near-zero stuttering rates across languages at 12 months post-Stage 1. Speech rate did not reduce following treatment.

Speech samples in Mandarin were difficult to obtain for some data collection points because Kee Loong’s mother reported that, as Kee Loong’s English vocabulary grew, he spoke predominantly in English, even when spoken to in Mandarin. Occasionally, he would code-switch to Mandarin for a phrase or two. Although speech samples post-Stage 1 were predominantly in English, Kee Loong remained stutter-free whenever he code-switched to Mandarin. Parental reports and SRs for Mandarin indicated low levels of stuttering in this untreated language.

**Participant Mei Mei**

Stage 1 of the LP was implemented in 57 sessions for Mei Mei over a period of 65 weeks. The first 30 sessions were carried out in the clinic and the remaining sessions were carried out via Skype. This was because the candidate was required to return overseas to continue her studies and was unable to continue providing face-to-face clinic sessions. Mei Mei entered Stage 2 with less stringent criteria, with less than 1.5 %SS and
SRs of mostly 2s and 3s for three consecutive sessions. This decision was made between the candidate and the mother after Mei Mei had shown stability in her stuttering frequency and did not progress further.

Mei Mei’s pretreatment %SS ranged from 9.4 to 15.5 %SS. The %SS range over the 6 months post-Stage 1 period was 0.5 to 4.5 %SS. Mei Mei’s 12 months post-Stage 1 measures are not available at the time of writing. Speech rate did not reduce following treatment. Mei Mei’s less satisfactory outcomes and relapse during Stage 2 could be attributed to a number of factors, such as her mother’s inconsistency in carrying out the skills she has learned and her inability to manage her elder children who sometimes commented on Mei Mei’s speech. According to Mei Mei’s mother, Mei Mei was naturally a sensitive child and thus, her siblings’ comments often had a negative effect on her. In addition, Mei Mei’s mother’s frequent travel for work often left Mei Mei with 2 or 3 weeks’ gap without therapy.

**Stage 1 Efficiency Measures**

Table 7.4 contains the efficiency data for participants who completed Stage 1. The raw data from which the figures in the table are derived are contained in Appendix L. Mei Mei had 30 sessions in the clinic, with the remaining sessions occurring via Skype. Jia Yi and Kee Loong completed all Stage 1 sessions in the clinic.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Number of Sessions</th>
<th>Number of Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jia Yi</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>Kee Loong</td>
<td>31</td>
<td>36</td>
</tr>
<tr>
<td>Mei Mei</td>
<td>57</td>
<td>65</td>
</tr>
</tbody>
</table>
For Kee Loong, some of the sessions required resulted from early inefficiency in the first few weeks of Stage 1. Both of Kee Loong’s parents wanted to be involved in their child’s treatment. Because each had different interaction styles with Kee Loong, Kee Loong was confused as to how best to respond to each of them as they took turns in administering treatment during a clinic session. In addition, the parents could not coordinate their treatment time at home. When Kee Loong showed no progress after four sessions, the candidate and the parents decided that Kee Loong’s mother should be the main therapy agent while both parents would be involved in assigning daily severity ratings for his stuttering severity.

The number of clinic sessions to reach Stage 2 ranged from 21 to 57 sessions for Jia Yi, Kee Loong, and Mei Mei. The number of weeks from the beginning to end of Stage 1 ranged from 24 to 65.

**Parent Questionnaires**

Only two parents completed the questionnaire because only two participants have completed data collection. Table 7.5 shows the frequency of responses by the participants’ mothers to each of the questions about ease of implementing the LP.

Overall, the mothers were mostly positive in their responses about the ease of implementing the components in the LP. One parent reported that requesting self-correction of stuttered speech was “a bit challenging,” especially when her child did not want to respond after the request and conversation was subsequently stopped. This parent further commented that the severity rating scale was subject to individual views and that there was no clear indication or a standard reference to refer to, and hence, that “rating may vary on the same speech.”
Table 7.5
Frequency of Responses to Questions About the Ease of Implementing the Lidcombe Program

<table>
<thead>
<tr>
<th>Question</th>
<th>Scale of Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Very easy</td>
</tr>
<tr>
<td>Praising/ acknowledging stutter-free speech</td>
<td>1</td>
</tr>
<tr>
<td>Acknowledging stuttered speech</td>
<td>1</td>
</tr>
<tr>
<td>Requesting self-correction of stuttered speech</td>
<td>1</td>
</tr>
<tr>
<td>Providing positive feedback 5 times more than negative feedback</td>
<td>-</td>
</tr>
<tr>
<td>Structured conversations at home</td>
<td>-</td>
</tr>
<tr>
<td>Unstructured conversations at home</td>
<td>-</td>
</tr>
<tr>
<td>The 10-point severity rating scale</td>
<td>1</td>
</tr>
</tbody>
</table>

On what was most enjoyed during the LP, one parent reported that it was the interaction and praising skills she had learned. She also reported that the program “feel[s] relaxing” and there was “no pressure” on her child. The other parent reported that she most enjoyed “having personal one-to-one session[s]” with her child and “really learn[ed] how to handle and [request for self-]correct[ion]” when he stuttered. This parent also reported being more alert to her child’s speech and being able to respond confidently. She also reported “feel[ing] happy” seeing her child’s progress.

On what was least enjoyed during the LP, one parent reported that sometimes she “really ha[d] no idea [about] what to play” with her child to attract the child’s attention...
during a structured session. This was especially so when her child was not in a good mood and did not cooperate. One parent had no comment on what she least enjoyed.

In regards to the improvements of the program, one parent commented that the LP was user-friendly in general except the 10-point severity rating scale that was a “bit vague in its standard of reference.” One parent had no comment in regards to improvements for the LP. Both parents reported that they would recommend the LP to other parents or caregivers of children who stutter.

**Description of the Adaptations Incorporated During Implementation of the Lidcombe Program**

As with implementation of the LP in previous studies, there were problems and issues that affected progress and outcomes of the participants in this study. Some problems were consistent with those previously documented (see Harrison, Ttofari, Rousseau, & Andrews, 2003; Hewat, Harris, & Harrison, 2003). These included incorrect stutter identification by the participants’ mothers, inadequate frequency of praise, infrequent treatment, and negative reactions by the participants to VCs for stuttered speech. Some problems were addressed by using common clinical strategies such as training mothers to identify stutterers via audiorecordings or providing immediate feedback during treatment when VCs were given incorrectly. However, some problems seemed to require some of the adaptations proposed in Chapter 6. Because the adaptations were not common clinical strategies, these will be presented in detail.

Table 7.6 shows the adaptations incorporated for each participant. As indicated, not all adaptations were used. In addition, the ones used were not necessarily needed for all participants.
Table 7.6

Chapter 6 Adaptations Incorporated for Each Participant

<table>
<thead>
<tr>
<th>Adaptation</th>
<th>Jia Yi</th>
<th>Ruby</th>
<th>Kee Loong</th>
<th>Mei Mei</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstration of 1:1 ratio of praise to stutter-free utterance</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Provision of a list of VCs for stutter-free speech</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Provision of a list of VCs for stuttered speech</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Code-switching</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Use of positive nonverbal responses</td>
<td>✓</td>
<td>-</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Avoidance of responses that could minimize or negate praise</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Verbal Contingencies for Stutter-Free Speech

It has been demonstrated that parental VCs are essential components in the LP (Harrison et al., 2004). In addition, developers of the LP suggest that “parents need to highlight stutter-free speech at least five times more often than stuttering” (Onslow, 2003c, p. 71): In other words, verbal contingencies for stutter-free speech need to be relatively frequent. From results and findings in Study 1 and 2 respectively, the candidate anticipated that parents would have difficulty in achieving an optimal frequency of the verbal contingency, praise for stutter-free speech. In particular, praise would be infrequent. Ruby’s aunt acknowledged not being used to praising. She was initially unable to achieve the optimal frequency of praise. Praise for stutter-free speech was observed by the candidate to be infrequent. Ruby’s stutter-free speech also did not increase during structured conversations. This was also the case with Kee Loong’s mother who showed difficulty in providing the optimal frequency of praise.
Therefore, the candidate demonstrated a 1:1 ratio of praise to each stutter-free utterance to Ruby’s aunt and Kee Loong’s mother, to assist them in increasing their frequency of praise. After four sessions, Ruby’s aunt and Kee Loong’s mother were able to achieve an optimal frequency of praise. This was despite Ruby’s aunt and Kee Loong’s mother not achieving the 1:1 ratio of praise to each stutter-free utterance. However, it was never the candidate’s intention for them to achieve this ratio. The ratio was meant only to highlight a high frequency of praise.

Jia Yi’s mother was able to achieve an optimal frequency of praise without the candidate having to provide a demonstration of the 1:1 ratio of praise to stutter-free utterance. In addition, on her own initiative, Jia Yi’s mother had used tick marks on small bits of paper to keep track of how many times she praised Jia Yi during each structured activity. This seemed to help her to provide a high frequency of praise.

The candidate also did not need to demonstrate a 1:1 ratio of praise to stutter-free speech to assist Mei Mei’s mother in increasing her frequency of praise. Mei Mei’s mother was able to provide an optimal frequency after the first session.

All the mothers and Ruby’s aunt were confined to providing the same expression of praise (i.e., “Good talking”) for stutter-free speech during the first few sessions. In addition, sometimes nonspecific praise was given for stutter-free speech during the beginning of the program (i.e, “Good”). Thus, the candidate gave all except Jia Yi’s mother, a list of positive VCs in English to prevent saturation point when praising and acknowledging their children’s stutter-free speech. This list was one of the adaptations described in Chapter 6 to facilitate variation of VCs for stutter-free speech. With the list, the mothers and Ruby’s aunt showed more variation in their expression of praise. In addition, the list also showed the specificity of praise for stutter-free speech that was required.

For Jia Yi, for whom therapy was conducted in Mandarin, it was agreed between Jia Yi’s mother and the candidate that direct translations for “good talking” or “excellent talking” in Mandarin were not suitable, as they sounded unnatural. Instead, Jia Yi’s mother and the candidate decided to use Mandarin acknowledgment of “That was smooth talking” or “You talked smoothly.” The key word in Mandarin was sùn (smooth).
Occasionally, “That was especially smooth!” in Mandarin would be used. The candidate also told and demonstrated to Jia Yi’s mother that she could code switch to using “Good” if it was more comfortable or natural for her, followed by specific acknowledgment in Mandarin about why the speech was good. However, it was found that just by acknowledging stutter-free speech in different ways and using varied tones and expressions, Jia Yi’s mother was able to provide VCs that were associated with an increase in Jia Yi’s stutter-free speech.

Code-switching to English rarely occurred for Jia Yi’s mother. The other mothers and aunt also did not code-switch to another language when praising or acknowledging their children’s stutter-free speech although they were told that they could do so if they were more comfortable with praising and acknowledging in another language.

**Verbal Contingencies for Stuttered Speech**

None of the mothers or aunt had difficulties with the terms used to acknowledge stuttered speech. The candidate did not give them the list of VCs for stuttered speech. However, during the beginning of the LP, all the mothers and aunt showed some reluctance in delivering the VCs for stuttered speech because of the negativity their children might experience. Mei Mei’s mother took 5 sessions before both positive and negative VCs were carried out correctly. Jia Yi’s mother, Ruby’s aunt, and Kee Loong’s mother each took 6, 7, and 8 sessions respectively before both positive and negative VCs were carried out correctly.

Jia Yi’s mother suggested that “knots” (tǎ jìè in Mandarin) could be substituted for “bumps.” Jia Yi’s mother and the candidate used the Mandarin term tǎ qì (deep breath) to acknowledge Jia Yi’s audible inhalations. In addition, the term “snakey long” was used to refer to Kee Loong’s frequent prolongations that were his most noticeable type of stutter.

**Use of Positive Nonverbal Responses**

Jia Yi’s and Mei Mei’s mothers, and Ruby’s aunt showed some form of positive nonverbal responses when delivering positive VCs to their children. These positive
nonverbal responses occurred naturally for all of them, without the candidate “prescribing” the responses. Jia Yi’s and Mei Mei’s mothers used varied tonal and facial expressions when delivering positive VCs. For Jia Yi’s mother, these worked particularly well because there was no natural sounding form of praise in Mandarin for stutter-free speech. Thus, varied tonal and facial expressions seemed to increase the positive impact of acknowledgment given by her mother.

Mei Mei’s mother reported using “emotional” rewards such as showing delight on her face while praising with different tones and expression, to increase Mei Mei’s stutter-free speech during structured conversations at home. This was also observed by the candidate during structured conversations in the clinic. Mei Mei’s mother also reported that occasionally, she would give Mei Mei a hug or a kiss that delighted Mei Mei. However, these nonverbal responses were always given together with the standard VCs recommended in the LP.

Ruby’s aunt would stroke the child’s head in affection when providing praise. This positive gesture was neither discouraged nor encouraged by the candidate because Ruby’s aunt continued to provide the VCs as taught.

Avoidance of Responses That Could Minimize or Negate Praise

The candidate did not need to advise any of the mothers or aunt about avoiding certain responses that could negate or minimize the impact of praise or acknowledgment of stutter-free speech. None of them provided these.

Other Clinical Procedures

In Chapter 6, some considerations were discussed in regards to working with bilingual children who stutter and their families. One of these was the choice of language for treatment when a decision is made to treat only one language. In this study, the choice of language depended on the parents’ or aunt’s preference. For Jia Yi and Ruby, the language preferred was that which they most frequently used with their mother and aunt respectively. For Kee Loong, it was a common language at home and at school.
In this study, participants’ untreated language/s were monitored during Stage 1 by using global SRs supplemented by occasional speech samples in the language/s from time to time during treatment. Global SRs refer to daily SRs across language/s. Occasionally, specific SRs for a particular language were requested in addition to the global SRs. This was to check whether there were any significant discrepancies in severity developing between the treated and untreated language/s. At no point was such a discrepancy detected. In addition, the speech samples in mixed languages obtained were sufficient for monitoring outcomes of all spoken languages for both clinical and research purposes, provided the samples represented all of a child’s spoken languages.

Discussion

The results obtained in this study suggest that stuttering improved significantly following the implementation of the LP for two bilingual participants Jia Yi and Kee Loong, with near-zero stuttering rates evident at the completion of Stage 1 for all the languages they spoke. These results are consistent with preliminary reports by Roberts and Shenker (2007) and Shenker (2004) on generalization of treatment effects to the untreated languages of bilingual children who stutter. Furthermore, data demonstrate maintenance of near-zero stuttering rates 12 months post-Stage 1. Further research could focus on investigating the generalization of treatment effects to the untreated languages of participants who are bilingual.

Participant Ruby, who withdrew for reasons not connected to the research or the treatment, also showed favourable progress during treatment. Clinical measures and speech samples obtained 2½ months after withdrawal showed that stuttering frequency was at a near-zero level. However, Ruby’s falling baseline during pretreatment is noted and thus, it is also likely that her outcomes could be attributed to natural recovery.

Participant Mei Mei, who entered Stage 2 with less stringent criteria, has since shown some relapse. Although relapse is common in Stage 2 (Onslow et al., 2003), factors such as her mother’s inability to carry out treatment consistently and her elder
siblings’ comments on her speech, may have contributed to her overall less favourable outcomes compared to the other participants.

Jia Yi, Kee Loong, and Mei Mei required 21, 31, and 57 sessions respectively to complete Stage 1. These figures were higher than the median figures reported in previous studies (e.g., Jones et al., 2000; Kingston et al., 2003; Lattermann et al., 2008; Miller & Guitar, 2009; Rousseau et al., 2007). Both Jones et al. (2000) and Kingston et al. (2003) reported a median of 11 clinical visits to complete Stage 1. Latterman et al. (2008), who provided only 16 weeks of treatment to 23 preschool children who stuttered, reported that only 3 out of the 23 participants completed Stage 1 in the 16 week period, with an average of 13 clinical sessions. Miller and Guitar (2009) reported a median of 17 sessions to complete Stage 1 while Rousseau et al. (2007) reported a median of 16 sessions. Although there are some controversies surrounding these figures (see Miller & Guitar, 2009; Rousseau et al., 2007), it is clear that the participants in this study required more sessions to complete Stage 1 than many participants in previous LP research.

A longer treatment time could be partly attributed to the fact that the mothers and aunt seemed to require a high number of sessions to deliver the VCs correctly, particularly for some who needed a longer time to master the skill of praising stutter-free speech. The mothers and aunt took between 5 to 8 sessions before they were able to demonstrate correct delivery of VCs for stutter-free and stuttered speech. This is consistent with the results and findings from Studies 1 and 2, which suggested that parents might require a lot of training time, particularly to master the skill needed to praise stutter-free speech.

Pretreatment severity could also have contributed to the longer treatment time, particularly for participant Mei Mei, who presented with at least 9% SS in all her pretreatment samples. The other participants presented with %SS ranging from 3.6 to 14.5% SS in their pretreatment samples. Thus, three of the four participants presented with at least moderate to severe stuttering. Jones et al. (2000) and Kingston et al. (2003) demonstrated that high pretreatment %SS is associated with a longer treatment time with the LP. Thus, pretreatment severity is likely to contribute to the long treatment time for the participants.
Another factor that could be associated with a longer treatment time is being bilingual, although there are two arguments that this is also unlikely a contributing factor. First, Mei Mei was monolingual and she took a longer treatment time compared to the other participants who were bilingual. Second, Shenker (2004), in using retrospective data, compared treatment outcomes between monolingual and bilingual preschool children who were treated with the LP, found that the mean clinic visits in Stage 1 for bilingual participants was 9.9 and 11.8 for the monolingual participants. Although the results were preliminary, they suggest that bilingual children who stutter do not necessarily need a longer treatment time.

For Mei Mei, treatment delivery through Skype video call could possibly have contributed to her long treatment time, in addition to the other problems she and her mother had encountered. It is established that low-tech telehealth delivery of the LP via phone takes longer than standard delivery (see Harrison et al., 1999; Lewis et al., 2008; Wilson et al., 2004). However, telehealth delivery via videoconferencing is different from phone consultation and no study has yet been conducted to compare the efficiency of the different methods. Therefore, it was unclear to what extent videoconferencing may have contributed to Mei Mei’s long treatment time.

Another possible factor that could have contributed to the longer treatment time for the participants could be the fact that the candidate, although trained and knowledgeable about the LP, was not as experienced as the developers of the LP and hence, took a longer time to train the parents to carry out the treatment. With more experience in the future, treatment time could perhaps decrease.

Overall, participants in this study required treatment time that was longer than the median reported in previous studies. This could be attributed to the high pretreatment severity and the other factors discussed. Future research could investigate whether the treatment time would be replicated and, if so, the causes of a longer treatment time.

Results from the current study have suggested that some of the adaptations proposed in Chapter 6 were beneficial during this implementation of the LP. However, on reflection, these “adaptations” are more akin to “strategies,” consistent with the problem
solving inherent to the LP, and to term them adaptations is a misnomer. Thus, adaptations were not needed at all for any components of the LP.

Some strategies used appeared to be beneficial in facilitating the implementation of certain components. For example, demonstration of the 1:1 ratio of praise to stutter-free utterance was found to be useful in facilitating the delivery of praise at a desirable frequency. It is suggested that for future clinical use, the 1:1 ratio be used only for demonstration purposes by a clinician, particularly when stutter-free speech does not increase during structured conversations or when caregivers acknowledged having difficulties in achieving an optimal frequency of praise. Caregivers should not be required to achieve this ratio. The demonstration merely highlights for parents the need for praise to be frequent while they attempt to achieve a desirable frequency themselves.

Another strategy that was found to be useful to prompt a range of phrases of praise was the provision of a list of positive VCs for most participants’ mothers and one participant’s aunt. This list was useful in that it seemed to be a tangible source of alternatives that the mothers and the aunt could refer to, and in doing so, provided some form of reassurance that they were saying the right things or that they need not be rigid in their form of expressions.

For participant Jia Yi, Mandarin acknowledgment for stutter-free speech was used and although limited in its form of expressions, Jia Yi’s mother supplemented her verbal acknowledgement through the use of positive nonverbal responses by varying her tonal and facial expressions. The use of positive nonverbal responses was found to occur naturally for most participants’ mothers/aunt. This implies that these responses could be encouraged as one strategy to supplement parents’ delivery of positive VCs, particularly if the child did not appear to respond to the VCs. This finding is similar to the results from the Latterman et al. (2008) study in which “nonverbal praise” (p. 61), such as noise-makers and individual gestures were used to supplement verbal praise. The authors reported that the use of these nonverbal forms of praise “resulted in a successful and more effortless increase of overall praise for the German parents” (p. 61) in the study, for whom the practice of praise was reported to be uncommon.
Reports from two mothers via the questionnaire indicated that implementing the LP was not a difficult task and that they would recommend the LP as an early intervention for stuttering to other parents. This implies that the LP could be accepted for implementation by other Malaysian families. There is also nothing in the responses to indicate that the LP would be more difficult or easier to implement for Malaysian families than parents in other societies (E. Harrison, personal communication, 15 April 2011). However, more research is needed, including families from different cultural backgrounds such as Malay, Indian, and the indigenous populations, and those who live in the rural areas before this conclusion can be drawn. This is because participants were all from Chinese families and lived in the urban areas, where better education and higher standards of living could have contributed to their easier acceptance of the LP.

For reasons unknown, there were more females than males in this study. However, prevalence studies (e.g., Craig et al., 2002) and incidence studies (e.g., Craig et al., 2002; Månsson, 2000; Reilly et al., 2009) suggest that more males than females stutter in the preschool age group. Implications of the unrepresentative gender distribution in this study are unclear, although it could be attributed to the convenience sampling method used.

This study also provided some important clinical implications in regards to working with bilingual participants who stutter. In this research, decision was made to treat only one language and monitor the other language/s. Results suggest that it is viable to treat only one language. Low levels of stuttering were also noted across languages. As suggested earlier on, further research is needed to investigate the generalization of treatment effects to untreated languages of bilingual children who stutter.

In treating only one language of participants who were bilingual, a decision needs to be made about the choice of language for treatment. Parental preference appeared to be the main factor in the decision-making process. Treating in the languages preferred by the caregivers is paramount because treatment might not be implemented correctly or indeed at all, if the child and the caregiver feel awkward with the language selected. Because the candidate could speak all of the participants’ spoken languages, the issue of choosing a language common to the child, caregiver, and candidate did not arise. However, for
clinicians who might not speak all of the child’s languages, it is recommended that a common language is used. If this language is not the preferred language for the child and the caregiver, it might be possible for the clinician to train the caregiver in the common language and the caregiver can carry out treatment in the preferred language. However, this raises the issue of the clinician monitoring outcomes or progress in an unfamiliar language. One possible solution to this is the use of global SRs.

In this study, global SRs were clinically viable for monitoring progress in the untreated languages. This raises the possibility that global SRs could also be used to monitor the outcomes or progress in an unfamiliar language.

If a clinician is unable to speak any of the bilingual child’s spoken languages, a referral to another clinician who speaks at least one of the child’s languages should be made. If this is not possible, an alternative is to obtain the services of an interpreter. However, interpreter services are uncommon in Malaysia. In addition, using the services of an interpreter raises a few issues of its own. For example, using an interpreter would mean having to train the interpreter to make sure that the messages about treatment implementation are being conveyed accurately. Another issue is that it might not be possible to have the same interpreter all the time and it is clinically impractical to train different interpreters each time. Future research could investigate the use of interpreter services in stuttering treatment outcome research.

In monitoring the untreated language/s of bilingual participants in this study, speech samples beyond the clinic were also occasionally obtained to complement the global SRs. Speech samples that contained a mixture of languages were found to be clinically sufficient to monitor progress of both the treated and untreated language/s, provided the samples represented all the children’s spoken languages. This is not only an important clinical implication, but also has research implications: Obtaining speech samples in each spoken language of a bilingual preschool participant will often not be realistic. This is because code-switching and/or code-mixing are common phenomena. Furthermore, it is often not viable to prescribe the language a preschool child is to use for a particular communicative context.
As this is a Phase I study, there is still much to explore in future research. However, the LP is worthy of further research as a treatment option for some children in Malaysia since evidence-based treatments for preschool who stutter are lacking. Further Phase I research could be conducted to establish safety and viability for a wider range of ethnic groups. Phase II research is also recommended, to continue exploration of the viability of the LP for Chinese-Malaysian families and to estimate the proportion of those who will respond to the treatment. Additional ideas for further research are presented in Chapter 8.

Conclusion

The treatment outcomes from this study provide the first documentation of the use of the LP in Malaysia. Although treatment time to complete Stage 1 was longer than that found in previous studies, results showed that the LP could be viably implemented and suggested that it can be accepted by Malaysian families. All of the components of the LP could be administered. Some strategies to facilitate implementation for Malaysian families were developed. Major adaptation of the LP appears not to be required.
CHAPTER 8
CONCLUSION

Thesis Overview

This thesis investigated the introduction of an early stuttering intervention, known as the Lidcombe Program (LP), in Malaysia, where evidence-based early stuttering intervention is uncommon. Chapter 1 provided an overview of stuttering: stuttering in general and early stuttering, its onset, its prevalence and incidence, and the current theoretical views of stuttering. From the review of literature, it was established that stuttering is a speech disorder for which onset usually occurs in the early years of life. Most studies with monolingual populations in the Western countries have established prevalence and incidence to be approximately 1% and 5% respectively, with the higher prevalence in the preschool age range. Although there are no data on the prevalence and incidence of stuttering for the Malaysian population, it is assumed that the rates are comparable with the ones reported in previous studies, with the higher prevalence rate in the preschool population.

Chapter 2 presented a review about natural recovery and its implications for the timing of early intervention. Studies on the estimates of natural recovery presented a wide range of figures, depending on the methodology employed. Studies had also attempted to investigate the predictors of natural recovery. Unfortunately, there are currently no ways to predict exactly whether a child will recover naturally, although there are certain factors that have been found to increase the likelihood of a child recovering naturally. In spite of these factors, a clinician cannot deny treatment to a child if there is any remote possibility that stuttering might persist. At most, a clinician could wait 6 to 12 months after onset, monitoring the child every 3 to 6 months, and then decide whether to initiate or further delay treatment, as long as, if treatment is needed, it is provided within the preschool years. This proviso is given because due to the negative impact of chronic stuttering, the current consensus is to treat stuttering within the preschool years.
Chapter 3 described three early stuttering treatment approaches that have recent evidence and are commonly reported in the literature. This chapter also presented efficacy data for each of the treatments. From the review, it was established that the LP has the best available evidence for efficacy and thus, this treatment was chosen for a trial in Malaysia. This chapter also contained a discussion of the congruence of the LP with the Malaysian context: whether a treatment that is mainly conducted by parents through VCs such as praising and acknowledging stutter-free speech and developed within a different culture, would be accepted and/or effective in Malaysian society. It was hypothesized that praising might not be a common parenting practice among Malaysian parents and thus, there was a possibility that the LP might not work in the Malaysian context. To investigate whether or not the LP might or might not be accepted, or whether an adaptation is needed, two studies were conducted. These were described in Chapters 4 and 5.

Chapter 4 presented a descriptive study investigating Malaysian parents’ use of positive reinforcement, particularly verbal praising. Participants in this study consisted of six parent-child dyads in Malaysia. Results showed that frequency of praise was indeed relatively low for Malaysian parents, although praise was present in most parents’ parenting repertoire. Results also showed that positive nonverbal responses were relatively more frequent and therefore suggested that these responses could be utilized as a complementary therapeutic procedure in the LP. Code-switching from another language to English was found to occur when parents praised their children.

To supplement the results obtained from Study 1, a study was carried out to investigate parents’ reactions and responses to the approach used in the LP, which was described in Chapter 5. Two focus groups were conducted. Findings from Study 2 supplemented results from Study 1, in that Malaysian parents of typically fluent children indicated that the practice of praise was not common in their everyday lives. Factors influencing this practice were also discussed. However, findings from this study indicated that if praising was carried out for therapeutic purposes, parents were willing to learn and carry out the practice. Additional findings from Study 2 also implied that most parents lacked knowledge of stuttering in general, and early stuttering intervention was not
commonly heard of, prompting the need to educate and create awareness not only among parents but the general public. A community program may therefore be beneficial to Malaysian society, to educate the public about stuttering and its impact and the available evidence-based treatments for adults and children.

Having preliminary information from these two studies gave the candidate a view to how the LP could be adapted and the likelihood of its acceptance among Malaysian families. A list of considerations, which includes a proposed adaptation of the LP and some issues to consider when working with bilingual children and their families, was made and documented. These considerations were described in Chapter 6.

Chapter 7 described the implementation of the LP with 4 Malaysian preschool children. Results provided low level (Phase I) evidence that the LP can be successfully implemented, with desirable outcomes achieved for two bilingual participants. These participants maintained near-zero stuttering levels for one year following treatment. Treatment was also found to generalize to the untreated languages of these participants. Another participant successfully completed Stage 1 but showed some degree of relapse in Stage 2, although severity did not approach pretreatment levels. As a clinician, it can be speculated that the relapse was caused by a number of factors such as the mother’s inability to provide treatment consistently and a complex family dynamic. However, from a researcher’s perspective, the reason for the relapse is unknown. The remaining participant withdrew for reasons not connected with the research or treatment process.

Results from this study also indicated that treatment time for the participants who completed the treatment was longer than the median treatment time in previous studies. A number of factors that could have contributed to a longer treatment time were discussed, although the exact reasons are unknown. Future research could focus on replicating this study to investigate whether this is a real difference, and if treatment time is indeed found to be longer compared to that in previous studies of the LP, to unravel the reasons for that difference.

Despite the long treatment time, the two parents who have completed the LP to date were mostly positive about the program. In addition, results from this study suggested that all the components of the LP could be viably implemented. Some
adaptations proposed in Chapter 6 were applied, although it was concluded that these were not adaptations, but strategies that were consistent with the problem solving component of the LP. These strategies appeared to be important for implementing the LP with at least some Malaysian families.

This study also established the viability of some clinical procedures for use with bilingual children who stutter, such as the use of global SRs to monitor the untreated language/s. Speech samples with languages mixing were also found to be clinically sufficient to monitor progress of both the treated and untreated language/s, provided all languages were represented.

**Study Limitations and Suggestions for Future Research**

As with most studies, this research program has its limitations. Each study was limited to a small sample size. In all 3 of the studies, sampling was limited to participants from urban areas, including only parents with at least 11 years of formal education. Although sampling in Study 1 included parents from major ethnic groups, such as the Malay, Indian, and Chinese, sampling in Study 2 included only Malay and Chinese parents, and in Study 3, only Chinese parents and their children participated in the trial of the LP. Therefore, results cannot be generalized to the entire Malaysian population as there were other ethnic groups that were not represented.

In addition, Study 3 was limited to a Phase I clinical trial. Thus, it has not been demonstrated that the LP led to the observed outcomes. However, results from the study showed improvement following treatment for all participants who completed Stage 1. Furthermore, viability has been established.

It is suggested that future research should include a Phase I clinical trial of the LP with other ethnic groups in Malaysia, particularly those living in the rural areas, to investigate whether the LP is viable and safe for these groups. In addition, a Phase II clinical trial is recommended for Chinese families to investigate further the potential efficacy of the LP for this ethnic group. Phase II research could also investigate the
proportion of Chinese-Malaysian children who would respond to the LP and shed more light on treatment efficiency. Research in which treatment is provided in one language could investigate the proportion of bilingual children for whom treatment effects generalize to their untreated language/s. Research could also investigate whether providing simultaneous treatment for all spoken languages of children who are bilingual could result in a shorter or longer treatment time. Future research could also focus on including participants with a range of pretreatment stuttering severity more representative of the population of preschool children who stutter.

What This Thesis Has Contributed

Despite the limitations, the research reported in this thesis has made a number of contributions. It has:

- explored some cultural issues that might impact on LP implementation;
- shown promising outcomes of the LP for one ethnic group in Malaysia;
- shown how the LP can be viably implemented without the need for any adaptation and has generated some strategies that clinicians could use to facilitate implementation with Malaysian families;
- generated some suggestions about clinical and research speech sampling with bilingual preschool children who stutter;
- generated some suggestions about how SRs could be used to measure severity of stuttering of bilingual preschool children who stutter;

Final Remarks

Despite having a long way to go to establish efficacy of the LP for Malaysian children, this research program has shown that the LP is a promising option for Malaysian preschool children who stutter. This is important because evidence-based early
stuttering treatment is an area that is underdeveloped in Malaysia. Preliminary outcomes from this study suggest that the LP could be viably implemented and thus, could provide a treatment option for some Malaysian families with preschool children who stutter. This is the first step toward preventing chronic stuttering for many preschool children who stutter in Malaysia.
REFERENCES


The Lidcombe Program of early stuttering intervention: a clinician's guide (pp. 41-55). Austin, TX: Pro-Ed, Inc.


Appendix A

Information Sheet, Consent Form, and Demographic Form for Study 1
INFORMATION SHEET FOR STUDY PARTICIPANTS
(PARENT-CHILD)

Name of the Research Study: A preliminary investigation of Malaysian parenting practices, responses and reactions to direct verbal feedback: Parent-child interactions

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Australia  Lidcombe NSW 1825  Australia
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Fax: +61 (02) 6051 6727  Phone: +61 (02) 9351 9430  Fax: +61 (02) 6051 6727
Email: liwilson@csu.edu.au  Email: m.lincoln@usyd.edu.au

You are invited to participate in a preliminary study investigating Malaysian parents’ practices, responses and reactions to direct verbal feedback. In this study, direct verbal feedback refers to spoken behaviours which include praising, acknowledging and requesting a person to self-evaluate or self-correct. These behaviours are an important treatment agent in the Lidcombe Program, an early stuttering intervention. The Lidcombe Program has been extensively researched, showing positive clinical outcomes in the treatment for preschoolers who stutter. Studies have shown that treating stuttering in the early years is important in the prevention of the negative impact of chronic stuttering. Chronic stuttering can affect a person’s life in the social, educational, emotional and vocational aspects.

As the Lidcombe Program was developed in Australia, it may not be appropriate to be used in a non-Western society. Therefore, this part of the study will be a foundation to see whether the Lidcombe Program could be used with Malaysian preschoolers who stutter. It is being conducted to also meet the requirements for the degree of Doctor of Philosophy (Community Health) of Ms Etain Vong, under the supervision of Dr Linda Wilson and Assoc. Prof Lindy McAllister from Charles Sturt University, Australia and Assoc. Prof. Michelle Lincoln from the University of Sydney, Australia.
If you consent to take part in this study, you will be agreeing for yourself and your child to participate in the following activities:

- completion of a form, which will take about 5-10 minutes. This form will ask for basic information about yourself and your preschool child. You need not leave your names on the form, just your initials.
- 2 interactions between you and your preschool child, which will be video recorded by a speech pathology student from Universiti Kebangsaan Malaysia. These interactions will be video recorded at your home and only one session will be required. Each interaction will last for 15-20 minutes (total of 30-40 minutes). These interactions will be:
  (a) a table task which your child enjoys doing with you. At the end of the task, you will ask your child to clear away the toys/activity before beginning the second task.
  (b) a table task which your child dislikes doing. You will have to try to get your child to complete the task. At the end of the task, you will have to ask your child to clear away the toys/activity.

Overall, these activities will be completed during a single visit to your home and will take about 50 minutes to complete. Your child’s involvement will be about 30-40 minutes.

Collecting this information will help us to adapt the Lidcombe Program for Malaysian preschoolers who stutter through a better understanding of how Malaysian parents provide verbal feedback to their children in general. If you give additional consent, the video tape can be used not only as data for this research but also as a teaching tool for speech pathology students of Universiti Kebangsaan Malaysia. This will further support us to understand more about parent-child interactions which can aid in the planning and management of speech therapy services for children and their families.

There are no risks expected for you or your child but you may or may not experience a little discomfort or stress when managing your child during the videorecording. Do not worry about your child’s behaviour during the video-recording.

Confidentiality and your anonymity will be assured. We will remove any identifying information that may identify you or your child from our records. Pseudonyms will be used when referring to you and your child. Any personal information will be altered so that you are not personally identifiable. You or your child will not be identifiable in any reports, presentations or publications arising from this study. Consent forms, data and videorecordings will be kept secure in the School of Community Health Speech Pathology Department (Charles Sturt University) and only accessible to the Principal Investigator and her supervisors as stated above.

Videorecordings used for teaching purposes will also be stored in the Department of Audiology and Speech Sciences (Universiti Kebangsaan Malaysia) and only accessible by the speech pathology staff to be used with the students. These recordings will contain no labels that will identify you or your child.

Please note that there is no obligation for you to take part in this study, and that you can withdraw at any time. Non-participation or withdrawal will not result in any penalty or discriminatory treatment.

If you are interested in taking part, please read, sign, and return the attached consent form to ________________________________.
NOTE:
Charles Sturt University’s Ethics in Human Research Committee has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Executive Office

Executive Officer
Ethics in Human Research Committee
Academic Secretariat
Charles Sturt University
Private Mail Bag 29
Bathurst NSW 2795

Tel: +(612) 6338 4628
Fax: +(612) 6338 4194

Any issues you raise will be treated in confidence and investigated fully and you will be informed about the outcome.
Participant Consent Form (Parent)

I, _______________________________ agree for myself and my child _______________________________ to participate in the research project entitled

A preliminary investigation of Malaysian parenting practices, responses and reactions to direct verbal feedback: Parent-child interactions

Being undertaken by:

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The purpose of the research has been explained to me, including any potential risks associated with the research, and I have read and understood the written explanation given to me. I have understood the nature of the following activities and agree to participate in the following:

- completion of a form, which will take about 5-10 minutes. This form will ask for basic information about myself and my preschool child.
- 2 interactions between me and my preschool child, which will be video recorded by a speech pathology student from Universiti Kebangsaan Malaysia. These interactions will be video recorded at our home and only one session will be required. Each interaction will last for 15-20 minutes (total of 30-40 minutes). These interactions will be:
  
  (a) a table task which my child enjoys doing with me. At the end of the task, I will have to ask my child to clear away the task before beginning the second task.
  (b) a table task which my child dislikes doing. I will have to try to get my child to complete the task. At the end of the task, I will have to ask my child to clear away the task.
I understand that these tasks will take me about 50 minutes to complete but my child’s involvement will be only 30-40 minutes.

I also understand that these activities will occur during a single visit to my home.

In addition,

I do/do not agree (please delete one) that the video sample of me and my child can be used for future educational purposes at Universiti Kebangsaan Malaysia and by speech pathology staff and students. The label on the recording will not identify me nor my child.

I understand that information or personal details gathered in the course of this research are confidential and that neither my name nor my child’s, nor any other identifying information will be used or published. Information and personal details will be kept secure as stated in the information sheet given to me.

I understand that results of this research may be published and may be used in subsequent research by the researchers.

I understand that I am free to withdraw consent for participation of myself and/or my child at any time and that if I do, I will not be subjected to any penalty or discriminatory treatment.

By signing this consent form, I confirm that

- I am consenting on behalf of myself and my child who is under the age of 14

Charles Sturt University’s Ethics in Human Research Committee has approved this study. I understand that if I have any complaints or concerns about this research I can contact:

Executive Officer
Ethics in Human Research Committee
Academic Secretariat
Charles Sturt University
Private Mail Bag 29
Bathurst NSW 2795

Phone: +(612) 6338 4628
Fax: +(612) 6338 4194

Signed by: __________________________________________
(Print Name)

_____________________________________________________
(Signature)

Date: ______________________________________
# DEMOGRAPHIC FORM

**Date:**

**INFORMATION ABOUT PARENTS:**

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**INFORMATION ABOUT YOUR CHILDREN:**

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<th>Attending preschool (Yes/No/Not applicable)</th>
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Appendix B

Parental Contingencies and Examples
**Appendices**

**Coding Level 1**

**Aim:** To determine whether a parental behavior is a response or not. This decision is discussed with another coder. Please put a tick in the box if it is agreed that the parental behavior is a response. You do not have to code anything yet.

<table>
<thead>
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<th>Code</th>
<th>Definitions</th>
<th>Examples</th>
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</table>
| +PC  | Positive Parental Contingencies | Child: (Clears up table)  
Parent: You’ve helped clear up the table. Well done! (Positive Parental Contingency → Acknowledgment/Encouragement + Praise) |
|      | A positive parental contingency is a positive response to the child’s neutral or good behavior, activity, product or attribute. It is a warm, enthusiastic, or neutral response.  
Positive parental contingencies that are coded are:  
a) Acknowledgment/Encouragement  
b) Praise  
c) Incentive  
d) Request for Self-Evaluation  
e) Positive Gesture |
| -PC  | Negative Parental Contingencies | Child: (Does something)  
Parent: That’s not quite right. (Negative Parental Contingency → Critical Acknowledgment/Question)  
Would you like to try that again? (Negative Parental Contingency → Request for Self-Correction) |
|      | A negative parental contingency is a negative response to the child’s neutral behavior or misbehavior that can be critical, reprimanding, commanding or neutral.  
Negative parental contingencies that are coded are:  
a) Critical Acknowledgment/Question  
b) Persuasion  
c) Grandma’s Rule  
d) Warning  
e) Negative Gesture  
f) Warning Gaze |
Appendices

g) Ignore

NR **Neutral Response**
A neutral response is:

- a) an answer to the child’s Wh-questions asking for information

  - Child: What’s this one called?
  - Parent: It’s a kangaroo. (Neutral response)

- b) an “I don’t know” or “I’m not sure” response to the child’s question.

  - Child: What’s this one?
  - Parent: Umm…I don’t know. (Neutral response)
  - I’m not sure. (Neutral response)

---

**Note.** A behavior can be verbal (something the child has said) or nonverbal (something the child has done).

**Coding Level 2**

**Aim:** To code the parental responses in specific categories. This is done independently and not discussed.

For example, A parental response → PC:AE

(a) **Positive Parental Contingencies**

<table>
<thead>
<tr>
<th>Code</th>
<th>Definitions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE</td>
<td><strong>An acknowledgment</strong> that is coded is:</td>
<td></td>
</tr>
</tbody>
</table>
|      | (a) a response that agrees with what the child said. | Child: It’s a blue car!  
  Parent: Yes, it is. (Acknowledgment/Encouragement) |
|      | (b) a response that agrees with the child’s request (giving permission) | Child: Mum, can I have this?  
  Parent: Yes, you can. (Acknowledgment/Encouragement) |
(c) a response that describes what the child is doing (child’s nonverbal behavior or activity), NOT the child’s toy or environment.

Parent: You’re making noodles. (Acknowledgment/Encouragement)

(d) an appreciative “thank you” and congratulatory verbalizations.

Parent: Thanks for helping me clear the table. (Acknowledgment/Encouragement)

(e) a response that reflects/repeats all or part of the child’s preceding verbalization. It may be exactly the same words the child said, may contain synonymous words, or may contain some elaboration on the child’s statement, but the basic content must be the same as the child’s

Child: That’s Barney the dinosaur.
Parent: It is Barney the dinosaur! (Acknowledgment/Encouragement)

(f) a response that expresses a liking to the child’s behavior, product or attribute.

Child: Do you like this picture? (shows picture child has drawn)
Parent: Yes, I like your picture very much. (Acknowledgment/Encouragement)

An Encouragement that is coded is:

(g) a response that tells or implies the child that something will be done together, and not by the child alone.

Child: I’m going to color this.
Parent: We can color this together. (Acknowledgment /Encouragement)

(h) a question that encourages the child to say or do something after the child has initiated a relevant behavior prior to it. If it is a direct question initiated by mother or a new question not related to the child’s prior behavior, do NOT code it. If uncertain, do NOT code.

Child: It’s a puppy!
Parent: What’s his name? (Acknowledgment/Encouragement)
(i) a question that asks for a clarification from the child.

Child: That’s Barney the dinosaur.
Parent: What’s that again? (Acknowledgment /Encouragement)

*Note:* As acknowledgement/encouragement often may overlap depending on the contexts, they will all be coded under one category.

<table>
<thead>
<tr>
<th>P</th>
<th><strong>Praise</strong></th>
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<tbody>
<tr>
<td>A praise that is coded is a specific or nonspecific verbalization that expresses a favorable judgment on the child’s behavior, activity, product, or attribute, and NOT objects in the environment (i.e., toys, things in the room etc.)</td>
<td></td>
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<tr>
<td>Good job.</td>
<td>Good.</td>
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<tr>
<td>You look very pretty.</td>
<td>Great! You kept all the blocks in the right box. (Praise + Acknowledgment/Encouragement)</td>
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<thead>
<tr>
<th>I</th>
<th><strong>Incentive</strong></th>
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<tr>
<td><em>Incentive</em> is a tangible reinforcement given or awarded to the child for a desirable behavior, activity, product, or attribute.</td>
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<tr>
<td>Stickers</td>
<td>Biscuits</td>
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<tr>
<td>Treats</td>
<td>Stamps</td>
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<tr>
<th>RSE</th>
<th><strong>Request for Self-Evaluation</strong></th>
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<tr>
<td>A request for self-evaluation is a question directed to the child to evaluate the child’s own behavior, activity, product, or attribute in a positive way, NOT the child’s toys or objects in the environment.</td>
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<tr>
<td>That’s very pretty, isn’t it? (refers to a dress the child is wearing) (Request for Self-Evaluation)</td>
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<tr>
<td>That’s very pretty, isn’t it? (points to a dress the child is holding) (not coded)</td>
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<tr>
<td>I think this is very nice, don’t you? (refers to a child’s drawing) (Request for Self-Evaluation)</td>
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<tr>
<th>PG</th>
<th><strong>Positive Gesture</strong></th>
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<tr>
<td>A positive gesture is a physical act with or without bodily contact between parent and child that is obviously positive or rewarding in response to the</td>
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<tr>
<td>Child: (finishes her drawing)</td>
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<tr>
<td>Parent: (Hugs) Well done! (Positive Gesture + Praise)</td>
<td></td>
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</tbody>
</table>
(b) Negative Parental Contingencies

<table>
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<tr>
<th>Code</th>
<th>Definitions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAQ</td>
<td><strong>Critical Acknowledgment/Question</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>A critical acknowledgment/question</em> that is coded is:</td>
<td></td>
</tr>
</tbody>
</table>
|      | a) a verbalization that *finds fault* with the behavior, activities, products, or attributes of the child. | Child: (Does something incorrectly)  
Parent: That’s not the way to put it together. |
|      | b) *blame* statements and “guilt-tripping” statements. | I know you did this. It makes me unhappy. |
|      | c) a comment that *corrects or contradicts* the child’s behavior, activities, products, or attributes. | Child: It’s a blue car.  
Parent: No, it’s a red car. |
|      | d) a *request for a self-correction* directed to the child’s behavior, activities, products, or attributes. The request can be specific, nonspecific or implied in a direct or indirect form. | Child: (Does something incorrectly)  
Parent: Would you like to do this again?  
*Or*  
Can you do this again properly? |
|      | e) a statement of *dislike or disapproval* of the child’s behavior, activities, products, or attributes. | Where is your ear!? You are not listening to me! (2× Critical Acknowledgment/Question) |
|      | f) a *sarcasm* referring to the child’s behavior, activities, products, or attributes. | Refers to the parent’s sarcastic tone of voice. |
### Appendices

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| **g)** a **command or reprimand** to the child’s behavior, activities, products, or attributes. | **Child:** (Makes noises and fidgets in the chair).  
Parent: Please sit still.  
*Or*  
Stop moving around.  
*Or*  
Would you please sit still?  
Don’t talk back. |
| **h)** an **unwillingness or refusal** of the parent to the child’s request. | **Child:** Mum, can I play with this?  
Parent: No, you can’t. |

#### Pn Persuasion

A **persuasion** is a response that indirectly commands the child to do something in a **pleading or persuasive** tone when the child is behaving otherwise or refuses to do something.

**Child:** I don’t want to do that.  
**Parent:** Please…do it once only.  
**Child:** No…  
**Parent:** Come one… just one more time. One last one (persuasive or pleading tone).  

#### GR Grandma’s Rule

A **Grandma’s Rule** is a positive or negative command that specifies a **positive consequence** if the child complies.

**Child:** I want to watch TV.  
**Parent:** Not until you finish your work. (Grandma’s Rule)  
**Child:** I want to play outside.  
**Parent:** Not until you tidy up these toys. (Grandma’s Rule)  

#### W Warning

A **warning** is a statement that includes a command accompanied by a **negative consequence** for noncompliance. The negative consequence can be specific or nonspecific (vague).

If you do that again, then we won’t go to the shops later.  
If you don’t finish you work, I won’t buy you the new toy.  
Do your work now or else you won’t get to play your video games later.
Appendices

I’m going to count to 3.

You’d better get started now or else…

I’m telling you…don’t get me started.

NG  **Negative Gesture**

* A negative gesture that is coded must be in response to the child’s behavior, product or attribute. This negative gesture
  a) is a physical act with or without bodily contact that is obviously negative and may inflict pain to the child (i.e., slaps, spanks, pinches).

 Parent hits, spanks, slaps, shoves, or shakes a child for misbehaving.

 b) is a parent’s pre-emptive interference with the child’s ongoing activity or person. It is an intrusion into the child’s workspace or it is an obtrusive, unsolicited act of entering into or taking over the child’s activity or an object with which the child is occupied.

 Parent holds child’s arms to prevent child getting an object or doing something (i.e., throwing a ball).

 c) includes physical interruption, hindrance, resistance, snatching, and blocking access.

 Parent holds child by the shoulder to prevent leaving the room.

 d) if a parent walks away when the child misbehave or does not comply, this is a negative gesture.

 Parent hugs child and says “Stop that!” (Negative Gesture + Critical Acknowledgment/Question)

 e) includes pursing of the lips, putting hands on the hips, finger pointing at the child, frowning,
Appendices

wrinkling of the forehead or any other gestures that imply anger, dissatisfaction, displeasure or a warning. The gesture can be manifested either in a serious, teasing or a joking manner.

f) WG **Warning Gaze**
An obvious eye contact that is meant to warn the child about a misbehavior or incompliance without saying anything. This includes raising of eyebrows and narrowing of the eyes.

IG **Ignore**

a) An obvious turning away or breaking eye contact with the child when the child misbehave or does not comply.

b) Remaining silent (but could still be keeping an eye on the child) when the child expects a response.

c) **Note.** For more detailed guidelines and rules on coding, please contact the author for the manual.
Appendix C

Permission Letter for Recruitment of Participants in Study 2
Headmaster/Headmistress,
(Preschool’s Address) 21 January 2008

Dear Sir/Madam,

Re: Research in the Preschool on the Intervention for Early Stuttering

As a PhD student of Charles Sturt University, Australia, studying under the Malaysian government scholarship, I would like to obtain permission to conduct a study on an early stuttering intervention, known as the Lidcombe Program in this preschool.

This study has been approved by the Ethics Committee of Human Research of Charles Sturt University. Attached is the copy of the ethics approval letter.

Stuttering is a speech disorder which affects the fluency of speech. It usually begins in the preschool years. It is important to treat stuttering in the early years due to the negative consequences of chronic stuttering and because it is more difficult to treat as children get older. The Lidcombe Program has been shown by many studies to produce positive clinical outcomes. The literature provides good quality evidence that the Lidcombe Program is the best available treatment for early stuttering. However, the Lidcombe Program has not yet been trialled in the Malaysian context. In addition, early stuttering is not commonly treated in Malaysia. Thus, the introduction of an effective treatment such as the Lidcombe Program will provide a valuable stepping stone in the field of stuttering in Malaysia.

Therefore, the main purposes of this study are to find out parent’s responses and reactions towards the approach used in the Lidcombe Program before the actual implementation of the program with Malaysian families. This is important for future clinical and research purposes in order to improve stuttering treatment for preschoolers.

With your approval, I would like:
(i) to distribute some brochures on early stuttering in this preschool;
(ii) to schedule a time with the preschool teachers to talk to them about early stuttering, its identification and how parents can help their children who stutter.
The study will not in any way disturb any scheduled teaching and learning of the teachers and students.

With your permission and cooperation, I hope that this study will be a stepping stone to aid young children who stutter. Please do not hesitate to contact me at 013-8114456 for more details. I look forward to your reply. Thank you very much.

Yours sincerely,

Etain Vong
PhD student
School of Community Health
Charles Sturt University

Dr. Linda Wilson
Supervisor
School of Community Health
Charles Sturt University
Appendix D

Information Sheet, Consent Form, and Demographic Form for Study 2
INFORMATION SHEET FOR STUDY PARTICIPANTS (PARENT)

Name of the Research Study: A preliminary investigation of Malaysian parenting practices, responses and reactions to direct verbal feedback: Focus group

Principal Investigator:
Etain Vong
PhD student
School of Community Health, Charles Sturt University
c/o Department of Audiology and Speech Sciences
Faculty of Allied Health Sciences, UKM
Kuala Lumpur, 50 300
Ph: +603 26914230/013-8114456
Fax: +603 2698 6039
Email: etain11@gmail.com

Supervisors:
Dr Linda Wilson
Speech Pathology Program
PO Box 789
Albury NSW 2640
Australia
Ph: +61 (02) 6051 6722
Fax: +61 (02) 6051 6727
Email: liwilson@csu.edu.au

A/Prof Michelle Lincoln
School of Community Health
PO Box 170
Albury NSW 2640
Australia
Phone: +61 (02) 9351 9430
Fax: +61 (02) 6051 6727
Email: m.lincoln@usyd.edu.au

A/Prof Lindy McAllister
Speech Pathology Program
C42
Charles Sturt University
PO Box 1825
Lidcombe NSW 1825
Australia
Ph: +61 (02) 6051 6750
Fax: +61 (02) 6051 6727
Email: lmcallister@csu.edu.au

You are invited to participate in a preliminary study investigating Malaysian parents’ practices, responses and reactions to direct verbal feedback. In this study, direct verbal feedback refers to spoken behaviours which include praising, acknowledging and requesting a person to self-evaluate or self-correct. These behaviours are an important treatment agent in the Lidcombe Program, an early stuttering intervention. The Lidcombe Program has been extensively researched, showing positive clinical outcomes in the treatment for preschoolers who stutter. Studies have shown that treating stuttering in the early years is important in the prevention of the negative impact of chronic stuttering. Chronic stuttering can affect a person’s life in the social, educational, emotional and vocational aspects.

As the Lidcombe Program was developed in Australia, it may not be appropriate to be used in a non-Western society. Therefore, this part of the study will be a foundation to see whether the Lidcombe Program could be used with Malaysian preschoolers who stutter. It is being conducted to also meet the requirements for the degree of Doctor of Philosophy (Community Health) of Ms Etain Vong, under the supervision of Dr Linda Wilson and Assoc. Prof. Lindy McAllister from Charles Sturt University, Australia and Assoc. Prof. Michelle Lincoln from the University of Sydney, Australia.
If you consent to take part in this study, you will be agreeing to participate in the following activities:

- completion of a form, which will take about 5-10 minutes. This form will ask for basic information about yourself and your preschool child. You do not need to leave your names on the form, just your initials.
- a focus group interview involving you and a few other parents of preschoolers. A focus group is a group sharing session. It will be facilitated by the Principal Investigator and conducted at a time convenient for you and the other parents. The focus group interview will last approximately 45 minutes. You will be shown two video clips. A discussion will follow each video clip. The discussion will be audio recorded and the conversation will be transcribed (written out) and analysed.

Collecting this information will help us work out how the Lidcombe Program can be adapted for Malaysian preschoolers who stutter. It will help us to understand and develop an efficient early intervention for stuttering in Malaysia.

There are no risks expected but you may or may not experience a little discomfort or stress during the focus group discussion such as feeling shy. Before the start of the interview, the interviewer will remind you that you may choose not to answer questions that you are uncomfortable with.

Confidentiality and your anonymity will be assured. We will code responses and remove or alter information that may identify you and other participants and pseudonyms will be used for you and the other parents. You will not be identifiable in any reports, presentations or publications arising from this study. Consent forms, data, audiorecordings and transcriptions will be kept secure in the School of Community Health Speech Pathology Department (Charles Sturt University) and only be accessible to the Principal Investigator and her supervisors as stated above.

Since there will be other parents taking part in the focus group interview, ensuring complete anonymity of the data is difficult: the other parents will see you. You will however, be requested to agree in writing to keep other parents’ personal details and the information shared in the focus groups confidential. Before the interview begins, the facilitator will remind you and the other parents about the importance of keeping this confidential.

Please note that there is no obligation for you to take part in this study, and that you can withdraw at any time. Non-participation or withdrawal will not result in any penalty or discriminatory treatment.

If you are interested in taking part, please read, sign, and return the consent form attached to ________________________________.
NOTE:
Charles Sturt University’s Ethics in Human Research Committee has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Executive Office

Executive Officer
Ethics in Human Research Committee
Academic Secretariat
Charles Sturt University
Private Mail Bag 29
Bathurst NSW 2795

Tel: +(612) 6338 4628
Fax: +(612) 6338 4194

Any issues you raise will be treated in confidence and investigated fully and you will be informed about the outcome.
Participant Consent Form (Parent)

I, __________________________________________________________ agree to participate in the research project titled

A preliminary investigation of Malaysian parenting practices, responses and reactions to direct verbal feedback: Focus group

Being undertaken by:

Etain Vong
PhD student
School of Community Health, Charles Sturt University
c/o Department of Audiology and Speech Sciences
Faculty of Allied Health Sciences, UKM
Kuala Lumpur, 50 300
Ph: + 603 26914230/ 013-8114456
Fax: +603 2698 6039
Email: etain11@gmail.com

Supervisors :

Dr Linda Wilson
Speech Pathology Program
School of Community Health
Charles Sturt University
PO Box 789
Albury NSW 2640
Australia
Ph: +61 (02) 6051 6722
Fax: +61 (02) 6051 6727
Email: liwilson@csu.edu.au

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The University of Sydney
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Albury NSW 2640
Australia
Ph: +61 (02) 6051 6750
Fax: +61 (02) 6051 6727
Email: lmcallister@csu.edu.au

The purpose of the research has been explained to me, including any potential risks associated with the research, and I have read and understood the written explanation given to me. I have understood the nature of the following activities and agree to participate in the following :

- completion of a form, which will take about 10 minutes. This form will ask for basic information about myself and my preschool child.

- a focus group interview with other parents of preschoolers which will take approximately 45 minutes and will be held at a time and location agreed between the interviewer, me and all the parents involved. The discussion will be audio recorded and the conversation will be transcribed.

In addition, I agree to keep confidential all the parents’ personal details and the information shared in the focus group discussion.
I understand that any information or personal details gathered in the course of this research about me and my child are confidential and that neither my name nor my child’s, nor any other information which will identify us, will be used or published. All information and personal details will be kept secure as stated in the information sheet.

I understand that results of this research may be published and may be used in subsequent research by the researchers, but that neither my name and my child’s nor any other identifying information regarding ourselves will be revealed.

I understand that I am free to withdraw consent for participation in this research at any time and that if I do, I will not be subjected to any penalty or discriminatory treatment.

Charles Sturt University’s Ethics in Human Research Committee has approved this study. I understand that if I have any complaints or concerns about this research I can contact:

Executive Officer  
Ethics in Human Research Committee  
Academic Secretariat  
Charles Sturt University  
Private Mail Bag 29  
Bathurst NSW 2795

Phone: +(612) 6338 4628  
Fax: +(612) 6338 4194

Signed by: _______________________________________________________

(Print Name)

_______________________________________________________

(Signature)

Date: __________________________________________
DEMOGRAPHIC FORM

Date:

INFORMATION ABOUT PARENTS:

<table>
<thead>
<tr>
<th>Initials</th>
<th>Father</th>
<th>Mother</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest education level</td>
<td>□ UPSR</td>
<td>□ UPSR</td>
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<tr>
<td></td>
<td>□ PMR</td>
<td>□ PMR</td>
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<td>□ SPM</td>
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<td></td>
<td>□ Higher degree</td>
<td>□ Higher degree</td>
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</table>

| Occupation | |
| Race | |
| Language/s spoken with your preschool child | □ Malay |
| | □ English |
| | □ Mandarin |
| | □ Other/s (please specify) | □ Malay |
| | | □ English |
| | | □ Mandarin |
| | | □ Other/s (please specify) |

INFORMATION ABOUT YOUR CHILDREN:

<table>
<thead>
<tr>
<th>Name/ Initials</th>
<th>Date of Birth</th>
<th>Gender (M/F)</th>
<th>Main carer of the child</th>
<th>Attending preschool (Yes/No/Not applicable)</th>
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Appendix E

Interview Guide for Focus Group 1
Interview Guide

Introduction: There are two video clips I’d like to show you. I will show you the first video clip and then we will have a discussion about what we see. Then, we will watch the second video clip and discuss about it.

After the first video clip:

1. What did you notice the parent was doing in the video clip?

   **Prompts:**
   - What do you think of the way the parent spoke to the child?
   - Can you comment on the way the parent spoke to the child in this video clip?
   - What do you think about the praising that was given to the child?

   **Follow-up questions:** How do you feel about that?
   - Can you be more specific?

2. Would you do something similar like that (i.e., praising) or would you do something different with your preschool child in that situation?

   **Prompts:** Would you say something like that to your child?
   - If you think that you would not say something like that, how would you do it instead?

   **Follow-up questions:** Can you be more specific?
   - Could you give me some examples?

3. In general, what do you think about praising your preschool child if he/she behaves well?

   **Follow-up questions:** How would you say it? (You can say it in any language as how you would say it to your child or could you tell me exactly how you would say it to your child)
After the second video clip: The child in this clip is stuttering.

1. Can you comment on the way the parent spoke to the child in this video clip?

**Prompts:**
What do you think about the praising that was given to this child?
How do you feel about that (the praising)?

**Follow-up questions:** Would you do it differently?
If yes, how would you do it?
Why?

2. If your child is not speaking properly, what would you do?

**Prompts:** If you notice your child stuttering, what would you do?

**Follow-up questions:** Would you say anything?
What would you say? (You can say it in any language as how you would say it to your child or could you tell me exactly how you would say it to your child)
Can you give me some examples?

3. Imagine if your child stutters. If he/she speaks well at certain times, what would you do?

**Prompts:** If your child who usually stutters suddenly speaks well at certain times, what would you do/ what would you say?

**Follow-up questions:** Would you say anything?
What would you say? (You can say it in any language as how you would say it to your child or could you tell me exactly how you would say it to your child)
Can you give me some examples?

Optional (to Q3): If parents do not naturally acknowledge

4. Imagine your child stutters. A professional advises you to praise your child’s smooth talking and comment on you child’s stuttering because this is known to reduce stuttering. Would you feel comfortable doing that?
Appendix F

Interview Guide for Focus Group 2
Interview Guide

Introduction: There are two video clips I’d like to show you. I will show you the first video clip and then we will have a discussion about what we see. Then, we will watch the second video clip and discuss about it.

Before showing the first video clip, I would like to ask a few questions about early stuttering (stuttering in children between the ages of 2 to 6 years old):

1. Can you tell me what you know about early stuttering?

2. Do you think early stuttering is a problem?

   Follow-up questions:
   If no: Why is it not a problem?
   When does it become a problem?

   If yes: What would you do about it?

3. What do you think causes early stuttering?

   Follow-up questions:
   Why do you think so?
   Why is that so?
   If this is the cause, would you see it as a problem?

After the first video clip:

4. What did you notice the parent was doing in the video clip?

   Prompts:
   What do you think of the way the parent spoke to the child?
   Can you comment on the way the parent spoke to the child in this video clip?
   What do you think about the praising that was given to the child?

   Follow-up questions: How do you feel about that?
   Can you be more specific?

5. Would you do something similar like that (i.e., praising) or would you do something different with your preschool child in that situation?

   Prompts: Would you say something like that to your child?
   If you think that you would not say something like that, how would
you do it instead?

Follow-up questions: Can you be more specific?
Could you give me some examples?

6. In general, what do you think about praising your preschool child if he/she behaves well?

Follow-up questions:
How would you say it? (You can say it in any language as how you would say it to your child or could you tell me exactly how you would say it to your child)

After the second video clip: The child in this clip is stuttering.

4. Can you comment on the way the parent spoke to the child in this video clip?

Prompts:
What do you think about the praising that was given to this child?
How do you feel about that (the praising)?

Follow-up questions: Would you do it differently?
If yes, how would you do it?
Why?

5. If your child is not speaking properly, what would you do?

Prompts: If you notice your child stuttering, what would you do?

Follow-up questions: Would you say anything?
What would you say? (You can say it in any language as how you would say it to your child or could you tell me exactly how you would say it to your child)
Can you give me some examples?

6. Imagine if your child stutters. If he/she speaks well at certain times, what would you do?

Prompts: If your child who usually stutters suddenly speaks well at certain times, what would you do/ what would you say?

Follow-up questions: Would you say anything?
What would you say? (You can say it in any language as how you would say it to your child or could you tell me exactly how you would say it to your child)
Can you give me some examples?
Would you praise your stuttering child if he/she speaks well at certain times?
If you do, how frequent will you do it?

7. Imagine your child stutters. A professional advices you to praise your child’s smooth talking and comment on you child’s stuttering because this is known to reduce stuttering. Would you feel comfortable doing that?

**Follow-up questions:** If you are not comfortable, why?
Appendix G

Proposed Adaptations of The Lidcombe Program for Families in Malaysia
English

Responses for Stutter-Free Speech

Praising and Acknowledging

That was smooth.
That was good talking.
I heard very smooth words. That was great.
That was great talking, no bumps at all.
That was smooth talking, no bumps at all.
That was really smooth! Well done!

Requests for Self-Evaluation

Was that smooth?
Do you think that was good talking?

Positive Nonverbal Responses

Positive nonverbal responses when interacting with their children such as a nod or a smile could complement any of the verbal response above to reinforce the responses. However, these nonverbal gestures should not be used alone because verbal responses as shown in the lists above are the essential components to increase children’s stutter-free speech.

What Not to Say After These Responses

That was smooth.
You can do better next time. DO NOT SAY THIS.

That was good talking.
But I think you can do much better too. DO NOT SAY THIS.

That was smooth talking, no bumps at all.
Why can’t you speak like that all the time? DO NOT SAY THIS.
I heard very smooth words. That was great. 
But you can do better next time. DO NOT SAY THIS.

Responses for Stuttered Speech

Acknowledging

That was a bit bumpy.
I heard a bump.
That was a bit stuck.
That was difficult for you to say.

Requests for Correction

That was a bit bumpy. Why don’t you try again?
I heard a bump. Let’s try saying it again.
That was a bit stuck. Let’s try saying _____ (word) again.
That was difficult for you to say. Why don’t you try saying _______ (word) again?
Can you say ____ (word) without getting stuck?
Can you say _____ that smoothly?

Note. Do NOT ask the child to slow down or acknowledge that the child is speaking too fast.
Malay

**Respon untuk Pertuturan Lancar**

*Pujian dan Teguran Positif*

| Lancar adik cakap tadi.  
| Bagus adik cakap tadi, lancar.  
| Ibu dengar adik cakap tadi lancarlah.  
| Adik cakap lancarlah tadi, tak tersekat-sekat.  
| Bagus adik cakap tadi, tak tersekat-sekat.  
| Lancarnya adik cakap. |

**Permintaan untuk Penilaian Diri**

| Lancar tak adik cakap tadi? |

**Respon Positif Bukan Verbal**

Respon positif bukan verbal seperti anggukan kepala atau senyuman semasa berinteraksi dengan anak-anak mereka boleh digunakan seiring dengan respon-respon verbal di atas untuk meneguhkan respon-respon tersebut. Walau bagaimanapun, gestur-gestur bukan verbal ini tidak harus digunakan secara bersendirian kerana respon-respon verbal yang ditunjukkan dalam senarai di atas adalah amat diperlukan untuk meningkatkan pertuturan lancar kanak-kanak.

**Respon Yang Tidak Harus Digunakan**

| Lancar adik cakap tadi.  
| **Cakaplah macam tu. JANGAN MENYEBUT KATA-KATA SEDEMIKIAN.**  
| Bagus adik cakap tadi, lancar.  
| **Lain kali cakaplah macam tu. JANGAN MENYEBUT KATA-KATA SEDEMIKIAN.**  
| Lancar adik cakap. |
Appendices

Pandai pun cakap macam tu. JANGAN MENYEBUT KATA-KATA SEDEMIKIAN.

Respon untuk Kegagapan

Teguran

Tersekat-sekat adik cakap tadi.
Agak tersekat adik cakap tadi.
Adik cakap tersekat sikit.

Permintaan untuk Membetulkan Diri

Tersekat sikit adik cakap tadi. Cuba adik sebut sekali lagi.
Agak tersekat adik cakap tadi. Cuba adik sebut ______(perkataan) sekali lagi.
Adik cakap tersekat sikit. Mari kita cuba sekali lagi.
Agak tersekat adik cakap tadi. Kita cuba sekali lagi, ok?


Code Switching

Code-switching is a common occurrence in families who speak more than one language. Results from a preliminary study (Vong et al. 2008) indicated that parents often code-switch to English when praising their children. Thus, clinicians might allow parents to code-switch when praising so long as the praise continues to focus specifically on stutter-free speech.

Examples:

Good. Lancar adik cakap tadi.
Very good. Tak tersekat-sekat adik cakap.
Ibu dengar adik cakap tadi lancarlah. Very good.
Appendix H

Brochures, Information Sheet, Consent Form, and Biodata Form for Study 3
professional people to advise parents not to worry about stuttering and not to seek treatment. However, it is quite normal for parents to be concerned about their child’s stuttering. Unfortunately, it is not possible to know in advance whether your child will recover without treatment, so it is recommended that you seek the advice of a speech pathologist as soon as possible after your child starts to stutter. The speech pathologist may suggest waiting a short while to see if the stuttering goes away naturally or may suggest starting the Lidcombe Program immediately. Other factors, such as whether your child is distressed by the stuttering, will be taken into account when deciding to start treatment. It is recommended that children start the program before they reach 5 years of age.

Further Information
Further information about the program, including how it should be implemented and scientific reports on outcomes, is available on the Internet on the following websites:
Australian Stuttering Research Centre:
www.fhs.usyd.edu.au/mrc
Stuttering Unit:
or for further information contact:

The Lidcombe Program is a treatment for young children who stutter. It has been developed since the mid-1980s at The University of Sydney at Lidcombe, and at the Stuttering Unit, Bankstown Health Service. Lidcombe and Bankstown are adjacent suburbs in Sydney, Australia. The program has been scientifically researched in Australia, Canada, and the United Kingdom, and the results of this research are very positive. In 2003 a randomized controlled trial of the Lidcombe Program was published in the British Medical Journal, showing that the treatment is extremely successful.
The Lidcombe Program

As a parent, you do the treatment with your child each day. You comment constructively on your child’s speech at various times and this shows your child how to speak without stuttering. You can do the treatment according to your family and cultural values. You and your child visit the speech pathology clinic each week. The speech pathologist works with you to ensure that the treatment is appropriate for your child and that it is effective (speech pathologists are also known as speech therapists, speech-language therapists, and speech-language pathologists). It is important that your child has fun while doing the program.

Features of the program
- You do the treatment with your child each day.
- You measure the severity of your child’s stuttering each day by giving it a score between 1 and 10, where 1 = no stuttering, 2 = extremely mild stuttering, and 10 = extremely severe stuttering.
- During Stage 1 of the program, you and your child see the speech pathologist for an hour a week, until the stuttering severity scores are 1 (or occasionally 2).
- Research shows that, when the treatment is done according to the treatment manual, 11 weeks is the median number of treatment sessions required to complete Stage 1. There is, however, a considerable range of treatment times that are necessary. Some children may take only a few weeks, while others may take more than 22 weeks.
- During Stage 2 of the program, the amount of treatment you do and the frequency of clinic visits systematically decrease, provided the severity of your child’s stuttering remains low. Stage 2 may last up to a year. It is very important to complete both stages of the program.

Treating Stuttering in Young Children

Many children grow out of stuttering in the preschool years. In the past, this has sometimes led
Malay Brochure

Faktor lain, contohnya, naima anak anda bersen terganggu terhadap kegagalan, akan dipertimbangkan sementara membuat keputusan untuk memulakan rawatan. Adalah diusahakan supaya kanak-kanak memahami program ini sebaik mungkin dalam 3 tahun.

Maklumat Lanjut

Maklumat lanjut mengenai program, termasuk cara pelaksanaan dan keputusan saintifik yang dihasilkan, boleh didapat dari laman web berikut:

Australian Streeting Research Centre:
www.dh.gov.uk/aasc

Streeting Unit:

Dan untuk maklumat lanjut, anda boleh:

Note. Placements of brochures are with permission from the Australian Stuttering Research Centre, Sydney, Australia. Brochures are not in actual size to enable placement in the thesis.
INFORMATION SHEET FOR PARENTS
(PARENT-CHILD)

Name of the Research Study: Adaptation of the Lidcombe Program for Malaysian Families: Preliminary Outcome Data

Principal Investigator:
Etain Vong
PhD student
School of Community Health, Charles Sturt University
c/o Department of Audiology and Speech Sciences
Faculty of Allied Health Sciences, UKM
Kuala Lumpur, 50 300
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Fax: +603 2698 6039
Email: etain11@gmail.com

Supervisors:
Dr Linda Wilson
Speech Pathology Program
PO Box 789
Albury NSW 2640
Australia
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Email: liwilson@csu.edu.au

A/Prof Michelle Lincoln
Head of the Discipline, Speech Pathology
School of Community Health
C42 Charles Sturt University
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Lidcombe NSW 1825
Australia
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Fax: +61 (02) 9351 9163
Email: m.lincoln@usyd.edu.au

A/Prof Lindy McAllister
Speech Pathology Program
PO Box 789
Albury NSW 2640
Australia
Ph: +61 (02) 6051 6750
Fax: +61 (02) 6051 6727
Email: lmcallister@csu.edu.au

You and your child are invited to participate in a preliminary study investigating the treatment outcomes of the Lidcombe Program with Malaysian families. The Lidcombe Program is a treatment for stuttering preschoolers developed in Australia. It has been extensively researched, showing positive outcomes and is by far the best available treatment for early stuttering. However, all the research so far has been conducted with Western families.

It is not yet common to treat early stuttering in Malaysia. There have been no studies done in Malaysia to show that a particular treatment used for preschoolers is effective. However, studies have shown that treating stuttering in the early years is important to prevent chronic stuttering. Chronic stuttering can affect a person’s life in the social, educational, emotional and vocational aspects.

Therefore, the aim of this study is to implement and evaluate the Lidcombe Program adapted for Malaysian preschoolers who stutter. Information from a previous study has suggested how best to adapt the Lidcombe Program for Malaysian families. If you agree to participate in this research, you will be helping us to evaluate the adapted Lidcombe Program. It is being conducted to also meet the requirements for the degree of Doctor of Philosophy (Community Health) of Ms Etain Vong, under the supervision of Dr Linda Wilson and Assoc. Prof Lindy McAllister from Charles
Sturt University, Australia and Assoc. Prof. Michelle Lincoln from the University of Sydney, Australia.

If you consent to take part in this study, you will be agreeing for yourself and your child to participate in the following activities:

- complete a form, which will take about 5 minutes. This form will ask for basic information about your preschool child for better planning and management of therapy sessions.
- attend the weekly clinical sessions with your child during Stage 1 of the program to learn from the speech-language pathologist how to conduct the treatment.
- implement the Lidcombe Program procedures daily outside the clinic with your child.
- collect audiorecordings of your child’s speech at several stages of the treatment.
- allow the speech-language pathologist to video record each clinical session.

Each session will last for 45 minutes to an hour. The number of sessions will depend on the progress of your child. It is IMPORTANT to attend the weekly sessions during Stage 1 to optimize treatment effectiveness. It is also IMPORTANT to attend sessions during Stage 2 to ensure that treatment effects are maintained while treatment is slowly withdrawn.

There are no risks expected during the treatment if procedures are carried out according to the speech-language pathologist’s instructions.

Confidentiality and your anonymity will be assured. We will remove any information that may identify you or your child from our records. Any personal information will be altered so that you are not personally identifiable. You or your child will not be identifiable in any reports, presentations or publications arising from this study. Clinical notes, consent forms, data, audio and videorecordings will be kept secure in the School of Community Health Speech Pathology Department (Charles Sturt University) and will only be accessible to the Principal Investigator and other people involved in the research.

Please note that there is no obligation for you and your child to take part in this study, that you can withdraw at any time. Nonparticipation or withdrawal will not result in any penalty or discriminatory treatment.

If you are interested in taking part, please read, sign, and return the attached consent form to ____________________________________________________________.
NOTE:
Charles Sturt University’s Ethics in Human Research Committee has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Executive Office

Executive Officer OR Sohaila Binti Yar Mamat
Ethics in Human Research Committee Department of Audiology and Speech Sciences
Academic Secretariat Faculty of Allied Health Sciences
Charles Sturt University National University of Malaysia
Private Mail Bag 29 Jalan Raja Muda Abdul Aziz
Bathurst NSW 2795 50300 Kuala Lumpur
Phone: +(612) 6338 4628 Phone: + 603 26914230
Fax: +(612) 6338 4194 Fax: + 603 26986039

Any issues you raise will be treated in confidence and investigated fully and you will be informed about the outcome.
Appendices

(CSU Letterhead)

Participant Consent Form (Parent)

I, ______________________________ agree for myself and my child ______________________________ to participate in the research project titled Adaptation of the Lidcombe Program for Malaysian Families: Preliminary Outcome Data being undertaken by:

Etain Vong
PhD student
School of Community Health, Charles Sturt University
c/o Department of Audiology and Speech Sciences
Faculty of Allied Health Sciences, UKM
Kuala Lumpur, 50 300
Ph: + 603 26914230/ 013-8114456
Fax: +603 2698 6039
Email: etain11@gmail.com

Supervisors:

Dr Linda Wilson Speech Pathology Program School of Community Health Charles Sturt University PO Box 789 Albury NSW 2640 Australia Ph: +61 (02) 6051 6722 Fax: +61 (02) 6051 6727 Email: lwilson@csu.edu.au

A/Prof Michelle Lincoln Head of the Discipline, Speech Pathology Cumberland Campus The University of Sydney PO Box 170 Lidcombe NSW 1825 Australia Phone: +61 (02) 9351 9430 Fax: +61 (02) 9351 9163 Email: m.lincoln@usyd.edu.au

A/Prof Lindy McAllister Speech Pathology Program School of Community Health Charles Sturt University PO Box 789 Albury NSW 2640 Australia Ph: +61 (02) 6051 6750 Fax: +61 (02) 6051 6727 Email: lmcallister@csu.edu.au

The purpose of the research has been explained to me, including any potential risks associated with the research, and I have read and understood the written explanation given to me. I have understood the nature of the following activities and agree to participate in the following:

- complete a form, which will take about 5 minutes. This form will ask for basic information about my preschool child for better planning and management of therapy sessions.
- attend the weekly clinical sessions with my child during Stage 1 of the program to learn from the speech-language pathologist how to conduct the treatment.
- implement the Lidcombe Program procedures daily outside the clinic with my child.
- collect audiorecordings of my child’s speech at several stages of the treatment.
- allow the speech-language pathologist to video record each clinical session.

I understand that the audiorecordings of my child’s speech are IMPORTANT to gather information on my child’s natural speech out of clinic to ensure that treatment works effectively outside the clinic in various situations. I therefore agree to collect these recordings as requested by the researcher.
I understand that each session will last for 45 minutes to an hour. The number of sessions will depend on the progress of my child.

I understand that it is IMPORTANT to attend the weekly sessions during Stage 1 to optimize treatment effectiveness. I also understand that it is IMPORTANT to attend sessions during Stage 2 to ensure that treatment effects are maintained while treatment is slowly withdrawn.

I understand that information or personal details gathered in the course of this research are confidential and that neither my name nor my child’s, nor any other identifying information will be used or published. Information and personal details will be kept secure as stated in the information sheet given to me.

I understand that results of this research may be published and may be used in subsequent research by the researchers.

I understand that I am free to withdraw consent for participation of myself and/or my child at any time and that if I do, I will not be subjected to any penalty or discriminatory treatment.

By signing this consent form, I confirm that

- I am consenting on behalf of myself and my child who is under the age of 14 years.

Charles Sturt University’s Ethics in Human Research Committee has approved this study. I understand that if I have any complaints or concerns about this research I can contact:

Executive Officer OR Sohaila Binti Yar Mamat
Ethics in Human Research Committee Department of Audiology and Speech Sciences
Academic Secretariat Faculty of Allied Health Sciences
Charles Sturt University National University of Malaysia
Private Mail Bag 29 Jalan Raja Muda Abdul Aziz
Bathurst NSW 2795 50300 Kuala Lumpur

Phone: +(612) 6338 4628 Phone: + 603 26914230
Fax: +(612) 6338 4194 Fax: + 603 26986039

Signed by: ____________________________________________________________
(Print Name)

________________________________________________________
(Signature)

Date: __________________________________________
# BIODATA AND CONTACT DETAILS

## Personal Details

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<td>Address *:</td>
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Speech and/or language problems:

## Family Details

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<th>Father:</th>
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<td>Name:</td>
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<tr>
<td>Language/s spoken with child:</td>
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<tr>
<th>Sibling/s (Name and Age):</th>
<th>Main carer:</th>
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<td>Language/s spoken with child:</td>
<td>Language/s spoken with child:</td>
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## Education Details

Nursery/ Preschool:
Contact Person:
Phone:
Address:

## Referral Information

Name:
Phone:
Address:
Appendix I

Rating Form
## Rating Form

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<th>Sample Code</th>
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<th>%SS</th>
<th>No. of Stutters</th>
<th>SPM</th>
<th>Accumulated Speaking Time</th>
<th>Remarks</th>
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Appendix J

Parent Questionnaire About The Lidcombe Program
FEEDBACK FORM

Your feedback is very important to help clinicians implement the Lidcombe Program more effectively. Please complete the form below by marking and/or completing the appropriate spaces. Thank you very much.

During Stage 1 of the Lidcombe Program:

1. Praising/ acknowledging stutter-free speech (e.g., Good talking, That was smooth) was

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very easy</td>
<td>Neither easy or difficult</td>
<td>Very difficult</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If it was difficult/very difficult, why?
________________________________________________________________________
________________________________________________________________________

2. Acknowledging stuttered speech (e.g., That was bumpy) was:

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<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
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<td>Very easy</td>
<td>Neither easy or difficult</td>
<td>Very difficult</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If it was difficult/very difficult, why?
________________________________________________________________________
________________________________________________________________________

3. Requesting for self-correction of stuttered speech (e.g., Please say that word again) was:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td></td>
<td>Very easy</td>
<td>Neither easy or difficult</td>
<td>Very difficult</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If it was difficult/very difficult, why?
________________________________________________________________________
________________________________________________________________________
4. Providing positive feedback 5 times more than negative feedback was:

![Scale]

Very easy | Neither easy or difficult | Very difficult

If it was difficult/very difficult, why?

________________________________________________________________________

5. Structured conversations at home were:

![Scale]

Very easy | Neither easy or difficult | Very difficult

If it was difficult/very difficult, why?

________________________________________________________________________

6. Unstructured conversations at home were:

![Scale]

Very easy | Neither easy or difficult | Very difficult

If it was difficult/very difficult, why?

________________________________________________________________________

7. The 10-point severity rating scale was:

![Scale]

Very easy to use | Neither easy or difficult to use | Very difficult to use

If it was difficult/very difficult, why?

________________________________________________________________________
If it was difficult/very difficult to use, why?
__________________________________________________________________________

The next few questions relate to Stage 1 and Stage 2 of the Lidcombe Program:

8. What did you enjoy most about the program?
__________________________________________________________________________
__________________________________________________________________________

9. What did you enjoy least about the program?
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

10. What would you like to improve about the program?
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

11. Would you recommend this program to other parents/caregivers of children who stutter?

Yes ☐ No ☐

THANK YOU VERY MUCH FOR THE FEEDBACK
Appendix K

Treatment Outcome Data
<table>
<thead>
<tr>
<th>Sampling Point</th>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
<th>Languages Represented</th>
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<td>%SS</td>
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<td>1 month pretreatment</td>
<td>6.7</td>
<td>127.9</td>
<td>3.6</td>
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*Note.* * indicates that the samples were excluded from the research. Sample 3 at 3 months post-Stage 1 was an extra sample obtained.
### Treatment Outcome Data: Participant Ruby

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<tr>
<th>Sampling Point</th>
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<th>Sample 2</th>
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*Note.* * indicates that the samples were excluded from the research.
### Treatment Outcome Data: Participant Kee Loong

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<th>Languages Represented</th>
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*Note.* * indicates that the samples were excluded from the research. Sample 3 at 1 week pretreatment was an extra sample obtained.
### Treatment Outcome Data: Participant Mei Mei

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</table>

*Note. All samples are in English. * indicates that the samples were excluded from the research. Samples at 12 months post-Stage 1 are not yet available at the time of writing.*
Appendix L

Participants’ Clinical Data
Jia Yi’s Severity Ratings (SRs) and Percentage Syllables Stuttered (%SS) During Each Clinical Session

- Severity rating
- %SS

(a) Stage 1
(d) Stage 1

(e) Stage 1       Stage 2
Stage 2
Note. SRs in Stage 2, after Session 21 are not plotted to a daily time scale like in Stage 1. SRs only present SRs the previous week before the scheduled clinical visits over a 1-year period.

V1: 2 weeks post-Stage 1
V2: 1 month post-Stage 1
V3: 6 weeks post-Stage 1
V4: 2 months post-Stage 1
V5: 3 months post-Stage 1
V6: 5 months post-Stage 1
V7: 6 months post-Stage 1
V8: 9 months post-Stage 1
V9: 12 months post-Stage 1
Ruby’s Severity Ratings (SRs) and Percentage Syllables Stuttered (%SS) During Each Clinical Session

- Severity rating
- %SS

(a) Stage 1
(b) Stage 1

(c) Stage 1
Kee Loong’s Severity Ratings (SRs) and Percentage Syllables Stuttered (%SS) During Each Clinical Session

- Severity rating
- %SS

(a) Stage 1
(b) Stage 1

(c) Stage 1
(d) Stage 1

(e) Stage 1
(h) Stage 2
Note. SRs in Stage 2, after Session 31 are not plotted to a daily time scale like in Stage 1. SRs only present SRs the previous week before the scheduled clinical visits over a 1-year period. At 2 months post-Stage 1, SRs the previous week before were not available because Kee Loong’s parents had gone travelling.

V1: 1 week post-Stage 1
V2: 2 weeks post-Stage 1
V3: 1 month post-Stage 1
V4: 6 weeks post-Stage 1
V5: 2 months post-Stage 1
V6: 3 months post-Stage 1
V7: 5 months post-Stage 1
V8: 6 months post-Stage 1
V9: 9 months post-Stage 1
V10: 12 months post-Stage 1
Mei Mei’s Severity Ratings (SRs) and Percentage Syllables Stuttered (%SS) During Each Clinical Session

- Severity rating
- %SS

(a) Stage 1
(b) Stage 1

(c) Stage 1
(d) Stage 1

(e) Stage 1
(f) Stage 1

(g) Stage 1
(h) Stage 1

(i) Stage 1
(j) Stage 1

(k) Stage 1
Stage 2
Note. SRs in Stage 2, after Session 57 are not plotted to a daily time scale like in Stage 1. SRs only present SRs the previous week before the scheduled clinical visits in Stage 2. Speech samples were obtained at 6 months post-Stage 1 although no Skype session was scheduled due to the unavailability of Mei Mei to attend.

V1: 2 weeks post-Stage 1
V2: 1 month post-Stage 1
V3: 2 months post-Stage 1
V4: 3 months post-Stage 1
V5: 5 months post-Stage 1