

PARENT-REPORTED PREDICTORS OF SUCCESS
IN FAMILY-CENTERED STUTTERING THERAPY

THESIS

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By

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INTRODUCTION

The most sufficient way to document therapeutic effectiveness in stuttering is a controversial subject. This controversy stems from the fact that there is still much disagreement among the experts on such topics as the definition of stuttering, what differentiates normal disfluencies from pathological disfluencies, and the definition of successful outcome (Frattali, 1998).

Stuttering is generally defined as an “abnormally high frequency or duration of stoppages in the forward flow of speech” and includes repetitions of sounds, syllables, or one-syllable words, prolongations, or “blocks” (Guitar, 1998). Disagreement concerning the definition of stuttering involves specifying when the characteristics described above are “normal hesitations” versus “pathological stuttering.” The dispute concerning successful outcome involves determining whether objective measurements of disfluency reduction or subjective measurements of the client’s quality of life most accurately reflect therapeutic success (Frattali, 1998). Despite the controversy, professionals who work with people who stutter, like other health professionals, are expected to provide documentation of their effectiveness. This obligation has compelled clinicians to seek out more efficient management plans for treatment.

One source for efficient management plans can be found in W. Edwards Deming (1982), a statistician and consultant, who sought to transform the typical American style of management that neglected to “plan for the future and foresee problems through use of a systematic process of data collection and analysis to increase knowledge” (Frattali, 1998, p. 4). His work caught the attention of large industrial corporations and has even influenced education and health care providers. Deming’s management plan includes a cycle that consists of making changes that might improve a current system, standardizing the change if it works, further deciding what other changes might also improve results, and beginning the cycle again. This system, designed to continually improve quality care, emphasizes the consumer’s present and future needs (Frattali, 1998).

As a result of Deming’s influence on health care, managed care and regulatory agencies have begun to demand outcome data from service providers. Simply put, an outcome is a result of intervention (Frattali, 1998). Outcomes can be defined several different ways, including clinically-derived, functional, administrative, financial, social, and client-defined. It is important to realize that clinicians look for a wide range of outcomes that are defined by the needs and interests of any particular stakeholder at any particular time during the treatment process. For example, clinicians might be interested in short-term outcomes (i.e., reduction in number of disfluencies per utterance from session to session) while a client might be more interested in long-term outcome (i.e., knowing how to cope with stuttering as a way of life) (Frattali, 1998).

Documenting Therapeutic Outcome

There are three reasons to assess outcome: to improve treatment, to enhance clinical science, and to provide accountability (Barlow, Hayes, & Nelson, 1984). Health care funding is also beginning to focus on the area of accountability (Lincoln, Onslow, Lewis, & Wilson, 1997). Third party payers, as well as clients of speech pathology, want to see documentation that the services they are paying for are effective. Unfortunately, there are little empirical data that proves services provided by speech pathologists in the area of stuttering are effective. The lack of data does not mean that the services are not effective, nor does it mean that researchers and clinicians have not tried to document effectiveness. The lack of sufficient data is probably caused by the limitations of the scientific method when dealing with humans. As pointed out by Gay (1976), one of the major obstacles in research that involves humans is the large number of uncontrollable variables that operate in the natural environment. Because of these uncontrollable variables, precise measurements are difficult to obtain and researchers have difficulty replicating findings of previous researchers. Due to these limitations, some researchers have resolved that the empirical method may not be an appropriate model for studying problems involving social sciences (Deese, 1972).

The Limitations of Objective Research in Dysfluency Research

Defining stuttering

As mentioned earlier, disagreement among the experts limits objective research. Kent (1996) pointed out some of the inconsistencies in judging stuttering. In

his review of the limits of the auditory-perceptual system in judging speech disorders, he found stuttering to be among the fields that produce the least reliable data.

The debate over what constitutes stuttering is evident in recent dialogue between Wingate (2001) and Yairi and Ambrose (2001). These scholars disagree on what type of disfluencies should be counted as a measurement of progress in stuttering. Wingate, for example, argued that Stutter-Like Disfluencies (SLD) of monosyllabic word repetitions are common in normal speech, are distinctly different from syllable repetitions, and should not be counted as stuttering (Wingate, 2001). On the other hand, Yairi and his colleagues argued that recent literature and their own research has demonstrated that SLD are prudent in deciphering normally disfluent children from incipient stuttering and must be counted to measure progress (Yairi & Ambrose, 2001). Despite their informative letters to the editor, the exact definition of what type of stuttering should be counted as stuttering remains unclear and unstandardized.

Defining Successful Outcome

Defining successful outcomes for stuttering therapy is also not an easy task (Sheehan, 1980). Outcomes are affected by many variables, including the researcher's or clinician's educational background, definition of what constitutes stuttering, and beliefs about the disorder. Because of the diversity that exists among the experts, a systematic protocol for assessing therapeutic effectiveness is not available (Blood & Conture, 1998). As a result, researchers and clinicians are forced to define their own measurement of success, which can range from objective and quantitative to subjective and qualitative (Andrews, Guitar, & Howie, 1980). Today's researchers are

pressured to use the most objective means possible in order to preserve science in the profession of speech-language pathology (Siegel, 1987).

Quantitative Measurements of Success

In the field of stuttering, the most widely agreed upon objective measures are pre- and post- therapy fluency counts. By using this as a measurement, clinicians are able to observe a change in behavior by teaching a client who stutters to decrease the number of stutters per utterance. Presumably, fluency measures are both quantitative and replicable and this makes research that uses these measures more valid than research that uses more subjective measures. The great irony of this position is that, in all actuality, fluency counts are not only not replicable, but research has shown them to be un-standardized and unreliable (Cordes & Ingham, 1994a), misleading (Mallard & Kelley, 1982; Sheehan, 1980), and unrepresentative of normal speech (Mallard & Kelley, 1982).

While frequency counts allow researchers to obtain a quantitative measurement, Cordes and Ingham (1994a) reviewed the literature and concluded that there is no evidence that observers show adequate agreement on total counts of stuttering. To be an objective measure, the measure must be observable, quantitative, and replicable. It has been demonstrated time and time again that frequency counts are not replicable. Kent (1996) suggests that the problem lies in the variability of the human auditory-perceptual system. He reiterated what previous scholars (Cordes & Ingham, 1994a) have stated: the measurement system most commonly used in dysfluency research (frequency of stuttering) is not reliable (Kent, 1996).

The well-known phenomenon of avoidance that accompanies the problem of stuttering also causes frequency counts to be misleading. The most severe form of stuttering is avoidance (Guitar, 1998). Frequency counts alone would not reveal the true severity of the problem as the avoider is an expert at not stuttering. Frequency of stuttering is also an inappropriate measure of progress in programs that emphasize desensitization (Van Riper, 1971, 1982). In such programs, the client is expected to stop avoiding moments of stuttering and to begin stuttering openly without embarrassment or shame. Since the percentage of disfluencies would increase as the client stopped avoiding, frequency counts alone would suggest that the client is getting worse when, in fact, they are progressing normally through therapy.

Another reason that frequency counts are difficult to replicate is because frequency of stuttering is quite variable. Mallard and Kelley (1982) reported that “many clients talked fluently during the assessment but did not use their ‘targets’ regularly on a daily basis (Mallard, 1998a; Mallard & Kelley, 1982). Researchers have attempted to account for this variability by assessing speech in various contexts, including assessing a client’s speech in situations where the client does not know they are being assessed (Boberg & Kelly, 1994; Lincoln, Onslow, Lewis, & Wilson, 1997; Lincoln, Onslow, & Reed, 1997; Onslow, Andrews, & Lincoln, 1994). In addition to the ethical issues with this type of assessment, this measurement may also be misleading. Considering the statements made by Mallard and Kelley (1982), certain individuals may possess the skills to produce fluent speech but may not demonstrate that skill during a blind assessment. The measurement would then suggest that the client had “relapsed” or was not successful, but this may not be the case. As Cooper

(1977) pointed out, fluency requires much “psychic energy” for stutterers and their ability to remain fluent depends on how much of that energy they are willing to expend at a particular time.

Subjective Measurements of Success

Given the obvious limitations of “objective” research in stuttering therapy, Mowrer (1998) suggests that one way to advance knowledge of dysfluency and therapy effectiveness is to broaden the scope of acceptable research. This requires that researchers and clinicians consider any information that may potentially open doors to future research. As Siegel (1987) pointed out, empirical advances are not the only advances that have contributed to the progress in stuttering management. Some would even argue that experimental research has contributed relatively little to the bulk of stuttering knowledge as compared to clinical observations (Lebrun, 1998). Indeed, clinical observations have played an important role in helping researchers formulate new ideas, investigate hunches, and look at old problems in new ways (Mowrer, 1998). In the case of stuttering research, rational means, rather than empirical means, may help advance progress in the management of stuttering (Siegel, 1987).

Client-Defined Outcome Measures

Cooper (1977) advises against imposing programs with externally derived criterion for success. His experience has led him to believe that therapy and outcome measurements should consider the feelings and beliefs that the stutterer has even if they do not meet the behaviorist’s definition of a measurable behavior. Cooper suggests a personally acceptable level of fluency as a possible outcome.

Allowing for a more subjective look at clinical effectiveness, Conture and Guitar (1993) stated that treatment should be considered effective when the child can communicate whenever he/she wants to whomever they want with feelings of readiness and ease. They stress the importance of considering the usability of dysfluency services to the person who uses it. These authors, like Cooper (1977), point out that more internal measures of effectiveness are more representative of change as well as the ability to maintain that change than more external measures such as frequency counts (Conture & Guitar, 1993).

Family-Defined Outcome Measures

Bernstein Ratner (1997) advises researchers and clinicians to include other members of the family by collecting data on the comfort level of the parents and children concerning the social and behavioral impact that resulted from therapy rather than focusing on stutter-free speech alone. This author suggests that success of therapy should include the reduction of parental and child stress (Bernstein Ratner, 1997).

Considering the parents when determining success is important when the integral role parents play in the management of stuttering is taken into account. In fact, including parents in the assessment and management of stuttering has been the topic of much research since the introduction of Wendell Johnson's diagnosogenic theory (Johnson, 1942). While most of today's experts do not entirely agree with Johnson's theory, few dismiss the notion that parents play an essential role in the assessment and management of the problem of stuttering (Rustin, 1995).

Several parents and clinicians have noted that children often become fluent on the day of assessment (Rustin, Botterhill, & Kelman, 1996). This concept highlights the importance of listening to parents' descriptions of their child's speech before diagnosing stuttering, giving a prognostic statement, or planning treatment (Rustin, et al., 1996). Luterman (1976) also states the importance of including parent-reported information for pre- and post-therapy assessments as parents are more aware of relevant information about their child than clinicians or researchers.

Another reason it is so important to include parents in the assessment and management of stuttering is that researchers have suspected that parents' interactions with their children may play an integral role in the development, progression, and recovery from stuttering (Nippold & Rudzinski, 1995). In the 1970's, researchers began to analyze specific characteristics of parents and how they are associated with their child's stuttering. Characteristics that have been analyzed include rate, turn-taking, interrupting, question-asking, and criticizing the way the child speaks.

The emphasis on parent-child interactions led to the establishment of several theories of stuttering onset and development (Nippold & Rudzinski, 1995), including Bloodstein's "Anticipatory Struggle" (Bloodstein, 1987) and the "Demands and Capacities" model (Starkweather & Gottwald, 1990). These theories have provided the foundation for many experts in the field of stuttering to advise parents to modify their interactions, or "speech behaviors," with their child (Nippold & Rudzinski, 1995). Over the past three decades, researchers and clinicians have designed research studies to better understand the relationship between parents' speech behaviors and their child's stuttering (Bernstein Ratner, 1997). The research to date is contradictory

and no conclusive statement can be made, other than the relationship that exists is a complex one that needs to be investigated further.

The Role of Predictive Research

While much literature exists concerning the possible cause and effect relationship between the child's environment and stuttering (Bernstein Ratner, 1997; Matthews, Williams, & Pring, 1997; Rustin, 1995), no research has evaluated the usefulness of this information in predicting success in stuttering therapy. In light of the new emphasis on the documentation of therapy effectiveness, predictive research would benefit everyone involved in the therapy process.

Knowing who is and who is not likely to succeed in a particular therapy program would certainly improve clinical efficacy. While several studies have predicted long-term relapse of stuttering (Hancock & Craig, 1998) and if childhood stuttering would recover or persist (Yairi, Ambrose, Paden, & Throneburg, 1996), little research has investigated predictors of success in a particular model of therapy.

One example of such a study can be found in Jones, Onslow, Harrison, & Packman (2000) which studied variables that might predict treatment time for 250 children ages 2-5 in their treatment program. The Lidcombe Program is a "parent-administered, nonprogrammed, operant treatment for early stuttering" (Jones, et al., 2000, p. 1441). The variables analyzed in this study included age, time since onset of stuttering, gender, and stuttering severity at first treatment session. The most decisive finding from this study was that the children with greater stuttering severity (%SS) required more time in therapy than did the children with lower levels of severity. This

study, however, did not directly deal with the parent-child interactions that may indeed affect their child's stuttering.

One Program's Response to the Need for Accountability

For more practical purposes, and in an effort to respond to the call for more outcome data, a retrospective, pilot study was conducted at Southwest Texas State University (SWT) to find predictors of success in therapy from case history information (Ehrig, 1998). The Family Intervention Stuttering Program (FISP) at SWT was modeled after a therapy approach outlined by Rustin (1987a, 1987b). This program involves a family problem-solving approach that incorporates speech therapy, social skills training, and transfer activities. Goals and objectives of therapy are determined by the family and success is achieved when the family demonstrates that they are able to deal with the problem of stuttering on their own (Mallard, 1998b). Results of that study indicated that two variables found in the case history, late language acquisition and the child was not bothered by his/her stuttering, decreased the child's likelihood of achieving success in the program.

An Argument for Parent Reports

Since the SWT program is tailored to each individual family, the Ehrig (1998) study relied on parent-reported information for pre- and post-therapy data collection. While parent reports are not without controversy, it is important not to dismiss them as an invalid measure of success for family-centered programs. Clinicians who engage in family-centered therapy services make observations as they occur in context, realizing that there are many perspectives of an event, and recognizing that because of this, subjectivity is inevitable (Scheffner-Hammer, 1998). They also recognize that

the families are in a better position to determine service outcome and how to achieve them than are the clinicians who provide the services. This practice has been known to lead to the families' feeling better about the services and a more positive regard for professionals (Lincoln, Onslow, & Reed, 1997; Scheffner-Hammer, 1998). This result is important considering the fact that consumer satisfaction is increasingly being linked to health care funding (Lincoln, Onslow, & Reed, 1997).

Clinicians and researchers involved with the Michael Palin Centre for Stammering Children (MPC) located in London, England recognized the value of predicting success from case history information. Their program utilizes a family-centered approach and focuses on training the parents to deal with the problem of stuttering on their own (Rustin, Botterhill, & Kelman, 1996). This program does not attempt to "cure" the problem of stuttering. The program emphasizes the "child's communication as a whole, rather than focusing on fluency in isolation" (Rustin, et al., 1996, p. 14) and helps parents "find ways of interacting with the child that will facilitate fluency" (Rustin, et al., 1996, p. 97). Training parents in this regard empowers them to take control of the problem as they assist their child in understanding and monitoring their speech.

Subsequent to hearing the research reported by the SWT researchers at the Fifth Oxford Dysfluency Conference in 1998, the Michael Palin Centre for Stammering Children sought out the researchers at SWT to engage in a similar study using data from their clinic. The Michael Palin Centre and The London Law Trust provided funding for the original researcher (Ehrig, 1998) to travel to their clinic and

create the same data-collection database at their clinic that had been created for the SWT project.

Purpose

Recognizing the important role that parents play in the assessment and management of stuttering, the specific purpose of this study was to determine if information regarding parent-child interactions extracted from case history information at MPC could be used to predict the success of certain families in their family-centered model of therapy. Parental reactions to stuttering information were found in the case history and were ideal variables to study as they can be modified in therapy to promote success. The information gained from this study would provide practical and usable information to the clinician. If used properly in the clinic, the information provided by this study would promote clinical efficacy and improve services to individuals who stutter. The purpose of this study was in full agreement with the purpose of Ehrig's study (1998) which stated,

“the results of this study will hopefully allow clinicians to guide potential clients more effectively toward the type of therapy that will allow them to become the most effective and uninhibited communicators possible” (Ehrig, 1998, p. 12).

METHOD

Participants

There were 47 total children available for inclusion in this research. The average age of the children at the time of the parent interview was 10:2 years, with a range of 6:0 to 14:4 years. The children and their families participated in the intensive program at MPC between 1996 and 2001. Inclusionary criteria for enrollment in this study involved families that completed the intensive, family-centered, stuttering program and returned the feedback questionnaire regarding long-term outcome. Families were excluded if they did not return the feedback questionnaire.

Types of Variables Gathered from the Parent Case History Interview Forms

The questions included in the parent interview process followed a format established by Rustin (1987b) and included information in four primary areas: 1) physiological, 2) linguistic, 3) environmental, and 4) psychological/emotional. The interview was always conducted by a MPC Specialist Speech and Language Therapist with experience working with dysfluent children. The forms allowed the clinician to present specific questions about the child's health, behavior, sibling relationships, family dynamics, stuttering behaviors, and personality type. Parent reported information was recorded without alteration.

The researcher involved with the original SWT pilot study (Ehrig, 1998) was sponsored by MPC and the London Law Trust to travel to London to create a database identical to one she created at SWT and to replicate her study with data from MPC. She examined the records of 26 case histories from MPC and analyzed them for potential independent variables. The analysis resulted in a possible 151 independent variables for investigation. The variable names were used as column headings in a Microsoft Excel (Microsoft, 1998) spreadsheet which was created by Ehrig (1998). The variable columns were placed in four groups related to Rustin, Botterhill, and Kelman's (1996) four categories: physiological data, linguistic data, social/environmental data, and psychological/emotional data. Data obtained from the case history forms were recorded under each variable heading in the spreadsheet. The present researcher completed the coding and analysis.

The potential variables were coded as nominal and ordinal data so that the data could be analyzed using consistent techniques of Exploratory Data Analysis (EDA) (Velleman & Hoaglin, 1981). EDA is a statistical technique that minimizes prior assumptions and allows researchers to use data visualization to guide their selections of appropriate statistical models for analysis (Velleman & Hoaglin, 1981).

Preliminary exploration of the data revealed differences in the way case history data were collected between the programs at SWT and MPC. The case history form at SWT has remained consistent and relatively static from the implementation of the program to today. The case history form at MPC can be described as relatively dynamic. The personnel at MPC have changed the content of the case history as new information about the problem of stuttering was acquired and applied. The changes in

the program, while beneficial to the client, make retrospective studies difficult to complete. Consequently, the methodology used in the original pilot study at SWT could not be replicated and a change in methodology was necessary.

Rather than analyzing each single variable against each outcome measure, analysis was adjusted to focus on parental reactions to their child's moment of stuttering. Recognizing the important role that parents play in the assessment and management of stuttering, the researchers involved with this study concluded that specific independent variables concerning the way in which the parents respond to their child's disfluency should be isolated and studied further. The focus of this study was modified to determine if parents' reactions to their child's stuttering before treatment could be used to predict the success a family would have in this program. Family interaction variables, such as the father's response to disfluency and the mother's response to disfluency, were isolated and analyzed for predictive value. Parental reaction to stuttering information was consistently found in the case histories and were ideal variables to study. These variables can be modified in therapy by counseling and training parents to increase positive behaviors and to decrease negative behaviors in order to promote success.

A data collection form, which isolated and organized the parent reaction variables, was created by the researchers at SWT and named the *Parent Reaction Form* (see Appendix A). Data from the original 26 case histories were transferred to the *Parent Reaction Form*. In addition, personnel at MPC examined an additional 21 case histories from their files and transferred the relevant data from the case history files to the *Parent Reaction Forms*. The personnel at MPC also re-examined the

original 26 case histories that had previously been examined by the original researcher from SWT. This provided the current research team with a means to calculate interrater reliability.

Interrater Reliability

The data that were recorded from 26 case histories by the original researcher was documented in the spreadsheet that was completed in the Summer of 1998. The personnel at MPC were asked to review the original 26 files plus additional client files to obtain data regarding parental reactions to their child's stuttering, the new focus of the study. Once that was completed, the data obtained from MPC personnel were compared to the data obtained from the original spreadsheet. Five variables were randomly selected from five randomly selected subjects and data from both sources were compared for consistency. Calculations revealed an interrater reliability of .92.

The combined efforts of the personnel at MPC and SWT resulted in an increase in the number of cases to be analyzed from 26 cases to 47 cases. Data from the *47 Parent Reaction Forms* were then transformed into appropriate nominal data and transferred into SPSS Statistical Software (Norusis, 1994) for analysis (see Appendix B for client profiles formatted according to variables used in this study).

Outcome Measures

Prior to isolation of factors to be used as independent variables in the study, three success measures were selected as dependent measures. The following three measures of outcome were identical to the measures used in the original pilot study at SWT (Ehrig, 1998) (see Appendix C).

Success Measure #1: Family Deals Effectively with Stuttering

The first measure used to determine the success of treatment was the report from participating families that their child no longer needed professional intervention following the completion of the program at MPC. This factor was selected since it reflected one of the primary goals of the program: to equip the family and child to manage the problem of stuttering on their own (Mallard, 1998b). This outcome was selected due to the fact that problem-solving is the primary emphasis of treatment. If the family had the knowledge and techniques needed to deal with the problem of stuttering on their own, they were considered successful, regardless of the level of child's disfluency on the day of evaluation. The family met criteria for outcome measure #1 if the child had not sought further therapy since completing the program. This was interpreted to mean the program had equipped the family to deal with the problem on their own.

Success Measure #2: Family's Ratings of Satisfaction with Family-Intensive Therapy

The second measure of success was the family's evaluation of satisfaction with the intensive stuttering course at MPC. Families were asked to state their level of agreement using a five-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) regarding the statement, "Overall, we were satisfied with the therapy we received." This measure was selected in response to Edward Deming's system of management that focuses on consumer satisfaction (Frattali, 1998).

Success Measure #3: ASHA's Seven Levels of Speech Control

The final measure of outcome was each family's rating of the level of speech control the child developed subsequent to completing the program. This measure was obtained by asking the family to rate their child's level of speech control using the

American Speech and Language Association's (ASHA) 7-levels of Speech Control (Baum, 1997) pre- and post-therapy. This system was designed to assess functional fluency outcomes from the perspective of the clients, clinicians, parents, third-party payers, and society (Cooper, 1998) and was part of ASHA's National Outcomes Measurement System (NOMS). Using this system, a speaker is ranked from Level 1 (non-functional, listener cannot understand message) to Level 7 (speech normal in all situations).

Each measure of outcome was provided by information obtained from a follow-up questionnaire distributed by mail from the personnel at MPC to the families in 2002 (see Appendix D). The information provided by the families represented long-term outcomes that ranged from 8 months to 5 years. The questionnaires were then forwarded to the present researcher and the information was coded as nominal or ordinal data and entered into the Microsoft Excel spreadsheet (Microsoft, 1998) and SPSS Statistical Software (Norusis, 1994).

Questionnaires were used in place of face-to-face meetings with the families for several reasons. First, using questionnaires allowed the researchers to obtain parent-reported information regarding their child's overall success, rather than relying on a static assessment of the child's speech in an unnatural context. Another reason for the use of questionnaires was because of the difficulties involved in scheduling meetings with subjects who lived overseas and with the families who had finished the program years earlier.

Statistical Procedures

The parent-reaction variables were isolated and (as a screening technique and to better understand associations within the data) each was compared to the three success measures in order to identify simple associations using Pearson's chi-square statistic (Gravetter & Wallnau, 1996). This was purely an exploratory technique used to help identify variables as likely candidates for the next step in the analysis and to help understand directionality in the associations between variables. Focusing attention on variables which have been studied previously in correlative and treatment research, such as parent behaviors and child's environment (Bernstein Ratner, 1997; Matthews, Williams, & Pring, 1997; Rustin, 1995), interactions between selected variables were next examined by creating interaction variables. These interaction variables were then analyzed for relationships using the three dependent measures of success. In addition, parent reactions were combined with other family-dynamic type variables such as the child's gender, birth order, age, and number of parents in the home, and these interactions were also tested for relationships with the dependent variables. With so many variables and their interactions included in the pool of potential variables, an alpha of 0.01 would be preferred for variable inclusion in the model definition. However, with such a small sample, alpha of 0.05 as a probability to enter was necessary to use stepwise regression for model building.

Stepwise logistic regression was used to identify relationships between the original variables and their interactions with success measure #1: Family Deals Effectively with Stuttering. Stepwise multiple linear regression was then applied to identify relationships between the original variables and their interactions with

success measure #2: Family's Ratings of Satisfaction with Family-Intensive Therapy and success measure #3: ASHA's Seven Levels of Speech Control. These methods of statistical analysis are common in studies designed to isolate predictors from an array of independent variables (Norusis, 1994).

RESULTS

The first two measures of success were dichotomous, meaning a family either was successful or was not successful as judged for those particular outcomes. Success measure #1: Family Deals Effectively with Stuttering, did not yield a significant model. Finding a relationship between the dichotomous outcome and the predictor variables proved to be difficult with only 47 eligible for analysis. This particular outcome should be studied further with a larger sample size.

In addition, a model could not be developed for Success Measure #2: Family's Ratings of Satisfaction with Family-Intensive Therapy. After exploring the database, it was evident that there was not enough variability between cases to effectively analyze the data statistically. Out of 47 cases, 44 families reported they were satisfied or more than satisfied with the program at MPC. While this finding obviously reflected positively on the program, due to the lack of variability, it negatively affected the researchers' ability to predict who was and who was not likely to be successful based on that particular outcome.

Success measure #3: ASHA's Seven Levels of Speech Control, yielded significant results. Stepwise multiple linear regression identified a mathematical equation that can be used to help guide clinicians in the selection of candidates for

future therapy (see Table 1). When applied to the parent reaction variables, this equation can be used to guide the selection of future clients for therapy.

Table 1. Equation identified to predict success using outcome measure #3

ASHA speech control level = $5.344 + .829$ (dad waits and listens & mom instructs child to modify speech) - $.509$ (mom waits and listens).

Dad waits and listens and mom instructs child to modify speech equals one when both parts are true. Otherwise, the interaction variable equals zero and contributes nothing to the predicted outcome of the ASHA speech control level.

The equation that identified the relationship between parent reactions and level of speech control explained 17% of the variance in the ASHA speech control level at a significance level of $<.05$ (refer to Table 2). The coefficient of determination for the model was somewhat low at 17%, indicating that although significant and useful as a predictor model, there remains a sizable proportion of the variation in the ASHA score that is explained by other (unmeasured) variables, or can only be attributed to unexplained variation.

Table 2. Analysis of variance for ASHA speech control level

Source	df	Sum of Squares	Mean Square	F	Sig.
Regression	2	8.909	4.454	4.401	<.05
<u>Residual</u>	<u>43</u>	<u>43.526</u>			
Total	45	52.435			

These results indicate that families that reported passive reactions by fathers and active reactions by mothers rated their children with higher levels of speech control. Specifically, when a father who reported that he “waits and listens” co-existed with a mother who reported that she “instructs the child to modify his/her speech” when their child had a moment of dysfluency, their child’s level of speech control was ranked higher than in families that did not report this interaction.

DISCUSSION

The purpose of the study was to determine if data obtained from case history information could predict success in the intensive family-centered stuttering program at the Michael Palin Centre for Stammering Children in London, England. Results revealed one significant finding: children with fathers who did not attempt to correct their child's speech and mothers who did attempt to modify their child's speech were more likely to experience successful long-term outcome than children without this parental interaction. This interaction explained 17% of the variance in which parents rated their child's level of speech control at a significance level of $<.05$.

The original intention of the study was to replicate the SWT study (Ehrig, 1998) and to compare the results of the two similar programs. Results of the original study (Ehrig, 1998) revealed two significant predictors of outcome: late acquisition of language and child not troubled by stuttering. The presence of these two variables in the case histories of the families who participated in the Family Intervention Stuttering Program (FISP) at SWT decreased their likelihood of being successful in therapy.

There were several possible implications suggested by the results of the original study (Ehrig, 1998). The first result, child not troubled by stuttering,

decreased the family's likelihood of long-term success. One possible explanation for this finding was that a child's lack of concern could mean that the child was possibly not motivated to change. This explanation seemed logical when the central role that the child plays in family-centered therapy is considered. Recognizing that FISP called for the child to make decisions and set their own goals on how to manage their stuttering (Mallard, 1998b; Rustin, 1987b), it is reasonable to conclude that the child's level of motivation would impact success more so with this type of family-centered, problem-solving program than with more clinician-directed therapy programs such as Hollins Precision Fluency Shaping (Webster, 1980) or Stutter-free Speech (Shames & Florence, 1980).

The child's level of motivation may have also affected the results of a similar predictive study completed in the Lidcombe Program (Jones, Onslow, Harrison, & Packman, 2000). Results of that study revealed that children who had stuttered longer were able to advance through treatment and learn to manage their stuttering in fewer sessions than children who had begun treatment closer to their initial onset of stuttering. The researchers suggested that this result may be explained by the level of participation expected from the child in that particular program. It was hypothesized that perhaps older children who had stuttered longer were more motivated to participate and to change their speech than younger children, with a relatively newer onset of stuttering, with less motivation to change.

Concerning the second predictor identified in the Ehrig (1998) study, late language acquisition, it was suggested that the parents' expectations of their child's language performance was somehow related to Starkweather's "Demands and

Capacities” model (Starkweather & Gottwald, 1990). The researchers hypothesized that perhaps a child who failed to meet his/her parents’ expectations in language skill responded negatively to the stress of the environment in which the child was perceived to be delayed, including the environment of family-centered therapy for stuttering (Ehrig, 1998).

The results of the current study also speak to the delicate relationship that exists between a child who stutters and their interactions with their parents. While single variables were not analyzed in the same method as the previous study, results of this study highlight the importance of addressing parent/child interactions in stuttering therapy.

The findings of this study suggest that the way in which parents interact with their children influenced their child’s level of success in therapy. More specifically, results indicated that children responded differently to their fathers than their mothers. It appears that parents play different and distinct roles in family-centered therapy. These findings suggest that the way in which parents are counseled may need to be individualized according to parental role in the home.

Selection of Independent Variables

In categorizing the behaviors in the present study, several questions arose concerning which behaviors were considered “positive” and “negative.” This study analyzed seven different behaviors involving the parent’s reaction to their child’s moment of stuttering and included the following: instructs child to modify speech; waits and listens; leaves; makes light of the situation; completes statement; becomes anxious; and becomes angry or irritated. The father’s and mother’s behaviors were

analyzed separately and as interactions to see which single variables or interactions of several variables influenced their child's success in the program.

In an attempt to consolidate the data, the researchers considered grouping the behaviors into "positive" and "negative" behaviors to determine if father and mother behaviors influenced success in different ways. The first variable, however, instructs child to modify speech, could not be coded as either positive or negative. It was determined that that variable would have to remain isolated and coded as "active" as the data were explored. The second variable, waits and listens, was also isolated and referred to in this paper as a "passive behavior." The remaining variables were grouped and coded as negative behaviors.

Additional information concerning family dynamics was obtained and analyzed as single variables and as interactions with parent behaviors to determine which single factor or combination of factors influenced the child's success. The additional variables included the following: child's gender, child has a younger sibling; child has an older sibling; child is first-born; parents are or have been divorced; and child lives in single-parent home.

An Argument for Un-biased Exploratory Data Analysis

Subsequent to exploring all single variables and interaction between variables, the strongest predictor of success was the following: father waits and listens while mother instructs child to modify speech. This result was surprising to the researchers because it appears to be contradictory to the way in which the families are counseled in the intensive family-centered programs at MPC and SWT. Mothers and fathers are each required to participate equally in the therapy program. However, the results

suggest that mothers should play a more active role in therapy than fathers. These results highlight the importance of exploring available data in a non-biased manner so that un-hypothesized relationships, such as this one, can be identified and studied further. As Mowrer (1998) pointed out, some researchers gather observational data in ways that are not always as well planned as most experimental and basic research studies. These un-biased observations, however, can assist clinicians and researchers in developing new theories about the etiology, nature, and treatment of stuttering.

Subjectivity versus Objectivity

The results obtained in this study are subjective in nature. As with other research that involves humans, many uncontrollable variables operate in the natural environment (Gay, 1976) and even the most tightly controlled studies will have methodological weaknesses. While subjective studies are not without controversy, it was considered necessary and appropriate given the therapy program being analyzed.

The intensive family-centered program at MPC relies heavily on information gained from the parent interview to assess and treat the problem of stuttering. As Mowrer pointed out (1998), many non-traditional treatment procedures are being derived from paradigms other than the scientific method to treat various disorders. The stuttering program at MPC might be considered “non-traditional” as it allows the family to determine their own goals and to decide when they have reached them. Since success depends on when the family can handle the problem on their own, not on decreased stuttering alone, the outcome measure for this program and study reflected qualitative changes rather than quantitative changes.

Recognizing the critical role parents play in the assessment of true change in their child's life and the call for objective measures of success from the profession, an attempt to quantify qualitative information from parents was made. The final outcome measure used in this study was Success measure #3: ASHA's Seven Levels of Speech Control (Baum, 1997), a rating scale designed to assess functional fluency outcomes. Parents were asked to retrospectively assess their child's level of speech control on a scale of one to seven before treatment and following treatment.

Limitations of Subjective and Retrospective Research

It is important to recognize the limitations of retrospective assessment. There is some research that suggests that parents may be unreliable historians and their reports may be affected by memory, parental pride, and limited knowledge concerning speech and language (Nippold, 1990). It is also possible that the parents are likely to report success following treatment for reasons other than observation of improvement in their child's speech. For example, the family may truly want to believe the program was successful since it cost the family time and money, a phenomenon commonly referred to as the halo effect (Wicklund & Eckert-Nowack, 1989). In addition, the parents may have felt appreciation for the information they gained as parents from participating in the program and inadvertently assigned success to their child's speech. In addition, the parents may have reported change in their child's speech when, in reality, it was a change that the parents made that promoted their feelings of success. This is supported by outcome data that were collected from the FISP in 1998 in which the parents reported that the single most important topic that promoted success in their management of the child's stuttering was "letting the child take

responsibility" (Mallard, 1998b). This result reflects more of a change in the parents' behavior rather than in the child's speech.

On the other hand, literature that supports the use of parent reports does exist. Bloodstein's (1987) definition of stuttering implied the importance of obtaining information from parents when he stated that stuttering should include "whatever is perceived as stuttering by a reliable observer who has a relatively good agreement with others" (p. 9). His definition is applicable here because it incorporates a listener's perception and considers any and all events that stuttering is perceived. Onslow (1992) admits that a stutter-free speech sample during the assessment is not sufficient to determine the child no longer stutters, due to the "variable and episodic nature" of stuttering (Onslow, 1992, p. 23). In addition, he further stated that "unsophisticated listeners such as the people the child interacts with daily are the ultimate judges of the treatment efficacy" (Lincoln, Onslow, & Reed, 1997).

When evaluating the admitted reactions to their child's stuttering, it is also important to consider that parents may not always be forthcoming in their responses. They may have heard from previous speech-language pathologists or read information that suggested that certain behaviors were contributing to their child's stuttering. With this in mind, they may not have been ready to admit to the interviewer, whom they just met, that they did, in fact, engage in some of the behaviors that they now believed to be negative. Failure to respond to the question honestly would have affected the data and how it influenced the success measures.

Another limitation intrinsic to retrospective research is the lack of controlled variables in the participant pool. Exploratory data analysis is a more effective

technique with larger numbers of participants. For this reason, this study included all families that completed the program and returned the outcome questionnaire. In order to maintain an adequate sample size, the researchers were unable to control for such variables as cultural/linguistic background, socioeconomic status, and/or concomitant communication disorders. Ideally, this study should be replicated with a more controlled participant pool.

The Need for Standardized Documentation

The results of this study also highlight an important point concerning documentation. The original design of the study could not be implemented due to changes that MPC made to their method of obtaining data over the years of program implementation. While MPC made the changes in response to current research in order to improve their clinical management of people who stutter, those changes created a situation in which their program of management could not be researched, at least not retrospectively, to determine the effectiveness of those changes.

Gregory (1980) urged speech-language pathologists to “refine observational and testing procedures” and to relate information from case history information to what is done in therapy (Gregory, 1980, p. 297). Speech-language pathologists who engage in intensive stuttering programs have vast amounts of patient information at their disposal. Their clinical files are an ideal source for predictive studies. However, limitations occur when data are not collected in a consistent manner across clients and across time. Perhaps future research should focus on “refining” the case history as Gregory suggested, by isolating and defining specific variables that should be collected for each client, regardless of program modifications made from year to year.

Such a defined list would help guide clinicians in their approach to obtaining case history information. Future researchers would then have access to a large pool of consistent data for numerous clients. Such a database would allow researchers to explore the information and investigate possible predictive relationships that may not otherwise be discovered.

Re-defining Acceptable Research

Regardless of how they are obtained, the call for outcome data has to be answered. Outcome data can not be disseminated if scholars do not allow information gained from non-traditional treatment programs to be shared with other professionals. There have been repeated requests for clinicians and programs/techniques, which are effective with young children and school-age stutterers, to be identified and studied further (Conture & Guitar, 1993; Bernstein Ratner, 1997). The research described here is a response to that request.

The data gathered from the two studies involving family-centered therapy clearly demonstrated that this method is effective with most of the families who participate. Mallard (1998b) reported that 82% of the participating families in FISP at SWT no longer needed therapy following completion of the program. The data collected from the current research study identified a success rate of 73% when using the same criterion for successful outcome. Still, the complications that arose from attempting to replicate the same study in two separate programs have to be considered and evaluated for change before this type of research can identify stronger relationships between pre-treatment variables and success.

The amount of variance that the relationship explains deserves discussion. The results of the study explain less than 20% of the variance in the success measure. Because of the subjectivity intrinsically involved with exploratory data analysis, the researchers were careful to report only what could confidently be confirmed as a true relationship. One possible explanation for the small percentage of variance identified is the small sample size used for this study. Statistically, finding a pattern with only 47 cases is a difficult task. Retrospective studies such as this one should be duplicated with larger sample sizes to identify stronger relationships.

Preliminary exploration of the database revealed three other consistent findings worth reporting: 1) mom's negative behaviors never showed any influence on success, 2) dad's negative behaviors always showed a negative influence on success, and 3) mom's passive behaviors always showed a negative influence on success. It appears then, that father's negative reactions to stuttering, more so than the mother's negative reactions, had a detrimental affect on their child's success. In addition, if the mother was to react passively, a reaction that seems to be positive if done by the father, also negatively influenced the child's success. These findings, if reliable, have obvious clinical relevance to the way in which clinicians counsel families in dealing with the problem of stuttering. Based on these findings, speech-language pathologists may need to emphasize the importance of the mother playing an active role with the father playing a more passive role in therapy. In addition, fathers should be made aware of the negative influence their negative behaviors could have on their child's success.

Several other patterns were identified while exploring the additional information concerning family dynamics in the database. If a child was first born and if the child was male, the parents tended to rate their child with higher levels of speech control. If the child came from a single parent home, the parent tended to rate their child with lower levels of speech control. These variables were analyzed in the same way that the parental interactions were analyzed. The strength of the relationship involving the active mother and passive father and how it affected success always overshadowed the patterns identified with the other variables. This finding is therapeutically applicable, considering the way in which parents interact with their child can be targeted and modified in therapy, whereas, birth order, gender, and number of parents in the home cannot be.

The relationships described above were only observed in preliminary exploratory analysis of the data. Future research should isolate these variables and study them within the context of a larger participant pool to determine their validity. Case history information is a very practical tool for research and should continue to be utilized in future research studies to continue the endeavor of advancing the efficacy of stuttering treatment.

Appendix A
Parent Reaction Form

Client name: _____ DOB: _____

Time of therapy: _____ Gender: M F

Age at interview (years.months): _____

Please look for the following variables in the case history and indicate the parent's answers to the following questions. Indicate (Y) for yes and (N) for no in the box located below each variable. If parent did not answer with a yes/no, please indicate their answer in the box below the variable.

Father's reaction to stammering:						
Instructs child to modify speech	Waits & listens	Leaves	Makes light of situation	Completes statement	Becomes anxious	Becomes angry or irritated

Mother's reaction to stammering:						
Instructs child to modify speech	Waits & listens	Leaves	Makes light of situation	Completes statement	Becomes anxious	Becomes angry or irritated

Additional Information:				
Child has a younger sibling	Child has an older sibling	Child is first-born	Parents are or have been divorced	Single parent home

Appendix B

Mother's reaction to stuttering: Variables extracted from case histories and analyzed as possible outcome predictors
 *Blank cells represent missing data

Client's Number	Instructs child to modify speech	Waits and listens	Leaves	Makes light of situation	Completes statement for child	Becomes anxious	Becomes angry or irritated	Negative index
	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	
1	1	1	0	0	0	0	0	0.00
2	1	1	0	0	0	0	1	0.20
3	1	1	0	0	0	0	0	0.00
4	1	0	0	0	0	0	0	0.00
5	1	0	0	0	0	0	0	0.00
6	1	0	0	0	0	0	0	0.00
7	0	1	0	0	0	0	0	0.00
8	0	1	0	0	0	1	0	0.20
9	1	0	0	0	0	1	0	0.20
10	1	0	0	0	0	0	0	0.00
11	1	1	0	0	0	0	0	0.00
12	1	1	0	0	0	0	0	0.00
13	0	1	0	1	0	0	0	0.20
14	1	1	0	0	0	0	0	0.00
15	1	0	0	0	0	0	0	0.00
16	1	1	0	0	0	1	0	0.20
17*								
18	1	1	0	0	0	0	0	0.00
19	0	1	0	0	0	1	1	0.40
20	1	1	0	0	0	0	0	0.00
21	1	1	0	0	0	0	0	0.00
22	1	1	0	0	1	0	0	0.20
23	1	0	0	0	0	0	0	0.00
24	0	1	0	0	0	1	1	0.40
25	0	1	0	0	0	0	0	0.00
26	1	1	0	0	0	0	0	0.00
27	1	1	0	0	1	0	0	0.20
28	1	1	0	0	0	0	0	0.00
29	1	0	0	0	0	0	0	0.00
30	1	1	0	0	1	0	0	0.20
31	1	1	0	0	0	0	0	0.00
32	1	0	0	0	0	0	0	0.00
33	1	1	0	0	0	0	0	0.00
34	1	0	0	0	1	0	0	0.20
35	0	1	0	0	0	0	0	0.00
36	1	1	0	0	0	1	0	0.20
37	1	0	1	0	0	0	0	0.20
38	1	0	0	0	0	0	0	0.00
39	1	1	0	0	0	0	0	0.00
40	1	0	0	0	1	0	0	0.20
41	1	1	0	0	0	0	1	0.20
42	0	0	0	1	0	1	0	0.40
43	0	0	1	0	0	1	0	0.40
44	1	1	0	0	0	0	0	0.00
45	1	0	0	0	1	0	0	0.20
46	1	0	0	0	0	0	0	0.00
47	1	1	0	0	0	0	0	0.00

Appendix B

Father's reaction to stuttering: Variables extracted from case histories and analyzed as possible outcome predictors

Client's Number	Instructs child to modify speech	WAITS AND LISTENS	LEAVES	MAKES LIGHT OF SITUATION	COMPLETES STATEMENT FOR CHILD	BECOMES ANXIOUS	BECOMES ANGRY OR IRRITATED	Negative index
	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	
1	0	1	0	0	0	0	0	0.00
2	1	0	0	0	0	0	1	0.20
3	1	1	0	0	0	0	0	0.00
4	1	0	0	0	0	0	0	0.00
5	1	0	0	0	0	0	0	0.00
6	1	1	0	0	0	0	0	0.00
7	0	0	0	0	0	0	1	0.20
8	0	1	0	0	0	1	0	0.20
9	0	1	0	0	1	0	0	0.20
10	1	0	0	0	1	0	0	0.20
11	1	1	0	0	0	0	0	0.00
12	1	1	0	0	0	1	0	0.20
13	1	1	0	0	0	0	0	0.00
14	0	1	0	0	0	0	0	0.00
15	1	0	0	0	0	0	0	0.00
16	1	1	0	0	0	1	0	0.20
17	1	0	1	0	1	1	1	0.80
18	1	1	0	0	0	0	0	0.00
19	0	1	0	0	1	1	1	0.60
20	1	1	0	0	0	0	0	0.00
21	1	0	0	0	0	0	0	0.00
22	1	1	0	0	0	0	0	0.00
23	1	0	0	0	0	0	0	0.00
24	0	1	0	0	0	0	0	0.00
25	0	1	0	0	0	0	0	0.00
26	1	0	0	0	0	0	0	0.00
27	1	0	0	0	0	0	0	0.00
28	1	0	0	0	1	0	0	0.20
29	1	0	0	0	0	0	0	0.00
30	0	1	0	0	0	0	0	0.00
31	0	1	0	0	0	0	0	0.00
32	0	1	0	0	0	0	0	0.00
33	1	0	0	0	0	1	0	0.20
34	1	0	0	0	0	0	0	0.00
35	1	0	0	0	0	0	0	0.00
36	1	0	0	0	0	0	1	0.20
37	0	1	0	0	0	0	0	0.00
38	0	1	0	0	0	0	0	0.00
39	1	0	0	0	0	0	1	0.20
40	1	0	0	0	0	0	0	0.00
41	0	1	0	0	0	0	0	0.00
42	1	0	0	0	0	0	0	0.00
43	1	1	0	0	0	0	0	0.00
44	1	1	0	0	0	0	0	0.00
45	1	0	0	0	0	0	0	0.00
46	1	0	0	0	0	0	0	0.00
47	1	0	0	0	0	0	0	0.00

Appendix B

Additional information. Variables extracted from case histories and analyzed as possible outcome predictors

Client's Number	Child's date of birth	Child's age at interview	Child is first born in family	Child has an older sibling	Child has a younger sibling	Child lives in a single-parent home	Child's parents are or have been divorced	Child's gender
		In Months	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	No = 0 Yes = 1	Male = 1 Female = 2
1	12 1 88	128	1	0	1	1	1	2
2	30 10 85	156	1	0	1	0	0	1
3	23 8 84	173	0	1	0	0	1	1
4	29 1 89	109	0	1	0	0	0	1
5	8 7 87	144	1	0	1	0	0	2
6	12.04 89	107	0	1	1	0	0	1
7	23 07 88	105	0	1	0	1	1	1
8	10 07 88	111	1	0	1	0	0	1
9	18 04 86	115	0	1	0	0	0	1
10	29 12 88	105	0	1	1	0	0	1
11	15 07 84	74	1	0	0	0	0	1
12	04 08 88	101	1	0	0	0	0	1
13	07 03 84	163	0	1	1	0	0	1
14	18 04 8	97	1	0	1	0	0	1
15	12 03 85	95	0	1	2	0	1	1
16	22 05 87	66	0	1	0	0	0	1
17	24 07 84	159	1	0	1	1	1	1
18	07 04 85	120	1	0	1	0	0	1
19	06 05 87	72	0	1	0	0	0	1
20	27 07 84	138	1	0	1	1	1	1
21	26 06 88	98	1	0	1	0	0	1
22	29 11 8	129	0	1	0	0	0	2
23	07 09 86	124	1	0	1	0	0	1
24	08 12 87	105	1	0	1	0	0	1
25	02 06 87	99	1	0	1	0	0	2
26	24.06 85	130	0	1	0	0	0	1
27	26 1 89	124	0	1	1	0	0	1
28	10 11 90	111	1	0	1	0	0	1
29	6 7 89	72	1	0	1	0	0	1
30	18 9 85	93	1	0	1	0	0	1
31	8 11 87	64	0	1	1	0	0	1
32	8 7 90	106	0	0	1	0	0	1
33	22 6 89	109	1	1	0	0	0	1
34	10 2 87	128	0	1	0	1	1	1
35	11 10 88	137	1	0	0	0	0	1
36	24 6 87	151	1	0	1	0	0	1
37	13 3 87	126	1	0	1	0	0	1
38	27 9 87	140	0	1	1	1	1	1
39	7 5 90	118	1	0	0	0	0	1
40	2 4 89	127	1	0	1	0	1	1
41	9 6 89	128	0	1	0	0	0	1
42	15 9 89	138	1	0	1	0	0	1
43	12 7 86	127	1	0	1	0	0	1
44	30 3 92	105	0	1	0	0	0	1
45	8 9 88	138	1	0	1	0	0	1
46	24 4 86	145	0	1	0	0	0	1
47	3 4 86	167	0	1	1	0	0	1

Appendix C
Success Measures

Client's Number	Child returned for further therapy No = 0 Yes = 1	Family was satisfied with program overall No = 0 Yes = 1	Parents' rating of child's level of speech control post-therapy Ordinal Scale. 1 - 7 1 = Unintelligible 7 = Normal
1	0	1	5 0
2	0	1	4 5
3	0	1	6 0
4	0	1	5 5
5	0	1	7 0
6	0	1	6 0
7	1	1	4 0
8	0	1	4 5
9	0	1	6 0
10	0	1	3 0
11	0	1	6 0
12	1	1	4 5
13	0	1	5 0
14	0	1	7 0
15	0	1	4 0
16	0	1	6 0
17	0	1	5 5
18	0	1	6 0
19	0	1	6.0
20	0	1	6 5
21	1	1	6 0
22	0	1	6 0
23	0	1	6 0
24	0	1	5 0
25	1	1	5 0
26	0	1	6 0
27	0	1	2 0
28	1	1	5 5
29	1	1	5 0
30	0	1	5 5
31	0	1	5 0
32	0	1	6 5
33	1	1	5 5
34	0	1	6 0
35	1	0	3 0
36	1	0	4 5
37	0	1	7 0
38	1	1	5 0
39	0	1	4 5
40	1	1	7 0
41	0	1	5 5
42	0	1	5 0
43	1	0	6 0
44	0	1	5 0
45	0	1	4 0
46	1	1	6 0
47	0	1	6 0

Appendix D
Outcome Questionnaire p.1

Name of Child
Form completed by

Using the scale below, please indicate how strongly you agree or disagree with each statement. Please write the appropriate number in the space provided

- 1-strongly agree
- 2-agree
- 3-nither agree nor disagree
- 4-disagree
- 5-strongly disagree
- 6-not applicable

- My child's communication skills as a whole have improved as a result of this therapy programme
- My child could not have improved without this therapy programme
- The amount of therapy that we received was appropriate for my child's needs
- My therapists were experienced and knowledgeable
- The emphasis of therapy was appropriate for us
- Communication/interaction in our family has improved following this therapy programme
- Allowing our child to make decisions about his/her stammering had a positive effect on our ability to manage the stammering
- Our child is more confident following this therapy programme
- My child is communicating at an independent level
- I would recommend this therapy to others
- Overall, we were satisfied with the therapy that we received
- My child can control his/her speech as needed
- Our family gained an understanding about stammering
- As a family, we were involved with the therapy process
- At the end of the course, we had a plan of the long-term management of our child's stammering problem

Appendix D
Outcome Questionnaire p. 2

Please provide short answers to the following questions. Use an additional sheet if necessary.

1. Does your child still stammer?
2. Other than the Follow up Sessions, has your child received further therapy since completion of the course (If no please go to Q6)
3. If yes, was this with the therapist at the Michael Palin Centre, or somewhere else?
4. What led you to seek that help?
5. What was provided in your subsequent therapy which was not covered in the course?
6. With regard to therapy, was there anything which was not covered in the course?
7. Which aspects of the course did you find most useful (please name one or two of the most significant)?
8. Using the descriptions on page 3, please rate your child's level of speech motor control prior to the course.
9. Using the descriptions on page 3, please rate your child's current level of speech motor control.
10. Is there anything else that you would like to say about the course?

Thank you very much for completing this form. The information you have given us will help us to improve our services for children who stammer and their families.

Appendix D
Outcome Questionnaire p.3

Use the following criteria to rate your child's current level of speech control:

Level 0: unable to make an assessment

Level 1: control of speech rate, rhythm or fluency are not adequate for successful communication; the listener cannot understand the message

Level 2: control of speech rate, rhythm or fluency are only adequate for automatic words and phrases; speech may be accompanied by facial grimaces, eye blinks, non-speech sounds etc; the listener's understanding of the message is severely limited

Level 3: control of speech rate, rhythm or fluency interfere with the listener's ability to understand the message at most times and in most situations; struggle and avoidance behaviors may also be observed

Level 4: control of speech rate, rhythm or fluency are appropriate at some times or in some situations; listener may be distracted by the speech problems and may experience some difficulty in understanding the message

Level 5: control of speech rate, rhythm or fluency are appropriate at some times or in some situations; listener may be distracted by the speech problem and may experience some difficulty in understanding the message

Level 6: control of speech rate, rhythm or fluency are appropriate in most situations, although minimal difficulty may occur; self-monitoring/self-corrections may be present; listener is only mildly aware of interruptions to the flow of speech; the listener is mildly distracted but understands the message

Level 7: control of speech rate, rhythm or fluency are normal in all situations

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