

## An Intensive Group Fluency Training Program for Young Stutterers in a Community Setting

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### Abstract

*This report details a behaviorally-based fluency shaping program which utilized establishment, transfer, and maintenance phases and incorporated features of attitudinal change, and parental and community involvement. The intensive training component (establishment and transfer) occurred during a twenty day intensive summer clinic; maintenance was addressed over the year following completion of training. Adolescent and pre-adolescent clients were treated. Data is reported for three years. Results show treatment to be effective for all groups based on speech and attitude measures obtained immediately post-therapy and at follow-up periods. Treatment was equally effective for older and younger clients. Results are discussed with emphasis on the benefits of a multidisciplinary community mental health setting in facilitating transfer and maintenance activities.*

### Introduction

The purpose of this study is to report the methodology and treatment outcome of three intensive group fluency programs for adolescent and pre-adolescent stutterers. The fluency program was offered through a community mental health clinic in which a multidisciplinary, community-based, family focussed treatment philosophy is emphasized. As such, this setting was supportive of a fluency treatment program that emphasized family involvement and community-based intervention. The operation of the fluency program was an extension of this philosophical position through the involvement of clinic staff from several disciplines in transfer activities and family participation in daily homework assignments. Thus, the program was essentially a replication of the success of other behavioral fluency shaping approaches, with the addition of family involvement in a naturalistic setting and the inclusion of pre-adolescent clients. Boberg and Kully (1985) have demonstrated that programs can be modified successfully for use with adolescents. This program was adapted to target the adolescent and pre-adolescent age groups.

### Program Objectives

The objectives of the intensive fluency program were as follows:

1. To successfully shape fluency behavior in adolescents and pre-adolescents such that fluency is maintained and is generalized to outside of the clinic setting. Clients would demonstrate less than 5% dysfluency at six months and one year post-therapy.

As was suggested by Homzie and Lindsay (1984), an eclectic approach to the treatment of stuttering might be the most "fruitful." The intensive fluency training program reported in this article draws from a variety of sources and utilizes certain aspects of each. It uses as its basis an intensive behaviorally-based fluency shaping program adapted from Armson and Fraser (1981), Perkins (1973a,b), and Boberg (1980). It incorporates features of transfer, maintenance, and attitudinal change, as well as parental involvement. Rustin (1978), in a descriptive case study of a behavioral stuttering treatment for adolescents, suggests that her encouraging results were due to: (1) the clients taking responsibility for their speech improvement; (2) parent and community involvement in homework to enhance generalization; and (3) assessed improvement of social skills in a peer group setting. Ingham (1982) reported success of an experimental intensive fluency approach for young adults including parental/family involvement and self-judgement approaches. He suggested that parental involvement in a more naturalistic ongoing clinic program may be difficult to achieve. This program attempted to involve parents and family, and the external community as well as clinic staff, in such a naturalistic program setting. In addition, a group treatment approach in which clients could interact with peers and learn to evaluate and monitor their own speech was implemented.

2. To measure change in clients' attitude about themselves in relation to their speech and speaking situations, and to document attitude change relative to change in fluency.

Some question exists as to whether a change in speech attitude affects a change in fluency (Guitar and Bass, 1978) or whether an improvement in fluency results in immediate change in speech attitude (Andrews and Feyer, 1985; Howie, Tanner, and Andrews, 1981). Change in speech attitude and fluency may correspond more closely when "real-life" type situations are used in transfer and maintenance tasks. Ulliana and Ingham (1984) state that the lack of correspondence between change in fluency and change in attitude for some clients could be due to the use of clinical testing situations as opposed to measures which use real life situations. Thus, in this program a scale was used to chart the course of speech attitude change relative to fluency behavior that more closely assures "real life" situations.

In summary, it was expected that a synthesis of program features from behaviorally-based fluency shaping programs with a family-focussed and community-based philosophy

would provide effective treatment. This would enable us to meet the program objectives for the adolescent and pre-adolescent client groups.

## Program Description

### Setting

MacNeill Clinic is a community mental health centre mandated by the provincial government to provide services for children (0-18 years) and their families. Services include: individual, group, and family assessment; psychotherapy and speech-language therapy; and consultation with other community agencies. Professionals working at the clinic include psychiatrists, psychologists, social workers, family therapists, and speech-language pathologists. Multi-disciplinary teams work with specific age groups to provide broad-based treatment for children and their families.

### Clients

Adolescent (age 14 to 17) and pre-adolescent (age 10 to 13) stutterers were selected for the program from invited referrals from various health and education professionals (e.g., speech-language pathologists, psychologists, psychiatrists, and social workers), parents, and self-referrals. Candidacy selection was based upon three considerations: (1) severity of the stuttering; (2) commitment of the client to complete task requirements; and (3) level of family or professional support. Stuttering severity was determined by measuring the percentage of syllables stuttered, and the rate of speech in syllables per minute (Andrews and Ingham, 1972 a,b, as cited in Andrews and Cutler, 1974). These measurements were analysed from the initial assessment videotape. The remaining two considerations, that of client commitment and family or professional support, were discussed at the initial interview. Clients who expressed an unwillingness or reluctance to complete in-clinic and homework assignments were not given high priority. Parents or professionals who expressed disinterest in being involved as required also lowered a candidate's priority.

Over a three year period, seven adolescent and five pre-adolescent stutterers were enrolled in the fluency training program. Six of the twelve clients had received therapy at some point previously, but none had completed an intensive treatment program. Four of the twelve clients exhibited additional speech, learning, or academic difficulties. One client spoke English as a second language. Four of the clients indicated a familial incidence of stuttering.

### Speech and Attitude Measurements

Speech samples were analysed from videotaped and/or audiotaped recordings in conversation, reading, and telephone conversation contexts. Measures taken were: number of syllables spoken per minute (SPM), number of stutters, and percentage of stuttered syllables (%SS). All moments of dysfluency were counted as stutters. Speech measurements were made using a hand-held counter and stop watch. Reliability was assessed during the third program by comparing the original clinician's

results with those of a second clinician. Judgements were based on random samplings from clients' videotaped speech samples. Interjudge agreement of 90% or better was achieved. An analysis of the type of stutter was completed (Adams, 1977, 1980) and secondary characteristics were described. A brief case history was obtained.

The *Erickson/Andrews Scale of Communication Attitudes, S24 Scale* (Andrews and Cutler, 1974), was given to all clients. This is a scale of twenty-four statements regarding communication attitudes about oneself as a speaker. High scores indicate negative attitudes, while low scores indicate a less negative attitude. A score of ten or less is found in normal speakers.

For purposes of evaluating treatment effectiveness, fluency and attitude measures were obtained at three points in time: (1) pre-therapy (one to three weeks prior to program involvement); (2) post-therapy (immediately upon the completion of the intensive intervention); and (3) six months post-therapy, at the six month maintenance clinic (recorded prior to any clinical intervention).

Fluency data were obtained for each client on a daily basis to evaluate performance at each of the stages of the program. Clients were taught how to use the counters and rating scale. They were expected to achieve good agreement with each other and with the clinician in syllable counting and in grading criteria for achieving fluency targets.

### Therapy Procedures

During the intensive clinical therapy program, clients met for three hours per day, five days a week for nineteen or twenty days. Daily homework assignments (30 to 60 minutes) were completed and handed in for analysis and feedback. The program consisted of three phases: establishment, transfer, and maintenance. The first two of these phases were emphasized in the intensive training portion of the program. Progression in the program was dependent upon achievement of criteria within each phase.

#### Establishment Phase

In this phase the client's speech was systemically shaped toward a target of dysfluency less than one percent in spontaneous speech with a speech rate of between 160 and 180 syllables per minute ("slow-normal" rate). Fluent speech was achieved by acquiring fluency targets of "easy onset" (initiation of voice in a gentle and gradual manner), and "blending" (continuous air flow over a breath group) at prolonged speaking rates. These techniques were maintained for three successive speech rates: 30 to 50 syllables per minute, 90 to 120 syllables per minute, and, finally, 160 to 180 syllables per minute. Clients had to maintain the fluency targets using progressively more difficult training materials. The clients achieved criterion at each rate for phrases, reading, monologue, and conversation (Armson and Fraser, 1981). Upon completion of these stages, the clients were taught to use "cancellation" (immediate repetition of a stuttered word with an easy onset) and other fluency

maintenance techniques (Boberg, 1981). Fake stuttering (J. Armson, personal communication, May 1982) was used to provide additional opportunities to practise the cancellation techniques.

Parents and family members were invited once weekly to participate in and observe treatment sessions. This provided family members with an opportunity to observe the client using fluency targets and to raise any concerns or questions with the clinician(s).

**Transfer Phase**

This phase of the program required clients to utilize their fluency control skills in a self-determined hierarchy of speaking situations. Initially, this entailed conversation (individual and small group) with personnel within the mental health setting. The clients then transferred to non-clinical settings and situations as criteria for successful speaking were achieved (Boberg, 1980). Nightly homework assignments also involved transfer assignments including speaking with parents and other family members, and in community settings. The transfer phase culminated in a final farewell tea to which family members and mental health professionals were invited and in which clients gave prepared speeches.

**Maintenance Phase**

The maintenance phase of treatment was a synthesis of procedures described by Armson and Fraser (1981), Boberg (1980), and Ingham (1982). The maintenance program consisted of daily recalibration exercises (practise of fluency targets during

exercises at all three speech rates), systematic record-keeping, speech practise in designated maintenance situations, and attendance at scheduled mini-clinics.

The maintenance schedule was implemented for the year following completion of the intensive training component. Maintenance clinics were scheduled at increasing intervals, with the first two clinics scheduled at one month intervals and subsequent clinics scheduled at six to eight week intervals. At a six month post-therapy maintenance clinic, data was collected for analysis. All maintenance clinics were scheduled at the same community mental health clinic. Clients were discharged one year following the intensive summer clinic if speech dysfluencies were less than five percent.

**Program Results**

The scores achieved by clients on the three measures used to evaluate effectiveness of the program are presented in Table 1 for pre-therapy, post-therapy, and six month follow-up periods. Inspection of Table 1 indicates that clients in all groups improved after therapy both with respect to indices of stuttering and of speech attitude. One exception to this finding is the %SS scores in reading for Client 1. These scores show a small decrease post-therapy and an increase on six month follow-up. This client was exceptional in his ability to read with very little stuttering prior to treatment. The slight increase in %SS may be due to an increase in SPM. This rapid rate of speech makes self-monitoring of fluency more difficult. It is important to note, however, that his final %SS was still within the normal range.

**Table 1.**

<i>Client Scores on All Speech and Attitude Measures Over Time</i>																							
CLIENT	PRE-THERAPY							POST-THERAPY				6 MONTH-THERAPY											
	CONVERSATION		READING		TELEPHONE		S24	CONVERSATION		READING		TELEPHONE		S24	CONVERSATION		READING		TELEPHONE		S24		
	SPM	%SS	SPM	%SS	SPM	%SS		SPM	%SS	SPM	%SS	SPM	%SS		SPM	%SS	SPM	%SS	SPM	%SS			
GROUP 1 1984	1.	117	25.6	221	0.9	----	----	16	191	2.6	198	0.0	----	----	13	248	2.8	262	2.8	----	----	9	
	2.	119	15.1	153	6.5	----	----	16	187	1.06	204	0.0	----	----	6	203	1.9	227	0.9	----	----	7	
	3.	106	16.0	88	26.1	----	----	20	161	1.8	154	1.9	----	----	16	131	0.8	154	0.6	----	----	16	
	4.	61	27.8	73	27.4	----	----	16	----	----	----	----	----	----	14	----	----	----	----	----	----	----	----
GROUP 2 1985	5.	106	27.0	121	19.0	48	50.0	13	171	1.2	174	0.0	173	1.2	5	210	1.9	220	1.8	----	----	----	
	6.	177	10.2	177	8.0	----	----	12	181	2.2	210	0.0	----	----	9	169	0.02	194	0.02	----	----	----	
	7.	182	12.6	158	9.5	148	12.8	15	192	0.5	188	0.0	199	0.5	9	147	3.4	181	2.8	215	1.9	----	
GROUP 3	8.	154	14.0	152	10.0	162	17.0	19	158	6.0	169	1.0	192	4.0	20								
	9.	188	7.0	197	0.0	147	10.0	15	202	3.0	193	0.0	238	3.4	15								
	10.	179	7.0	201	7.0	127	16.0	15	172	4.0	181	1.0	198	2.5	8								
	11.	168	2.0	188	0.05	163	6.0	14	183	0.0	202	0.04	196	2.0	10								
	12.	155	5.0	178	1.0	127	8.0	17	200	2.0	199	0.5	189	2.1	11								

**Table 2.**

<b>Therapy Scores Over Time for All Groups</b>									
GROUP	PRE-TEST			POST-THERAPY			6 MONTH POST-THERAPY		
	SPM*	%SS	S24	SPM	%SS	S24	SPM	%SS	S24
1984	117.25	16.0	17.0	182.50	1.22	12.25	204.16	1.59	10.6
1985	153.5	16.55	13.33	186.00	0.64	7.67	186.81	1.65	—
1986	176.00	5.31	16.0	185.90	1.75	14.8	—	—	—

\*based on average of combined Conversation and Reading scores

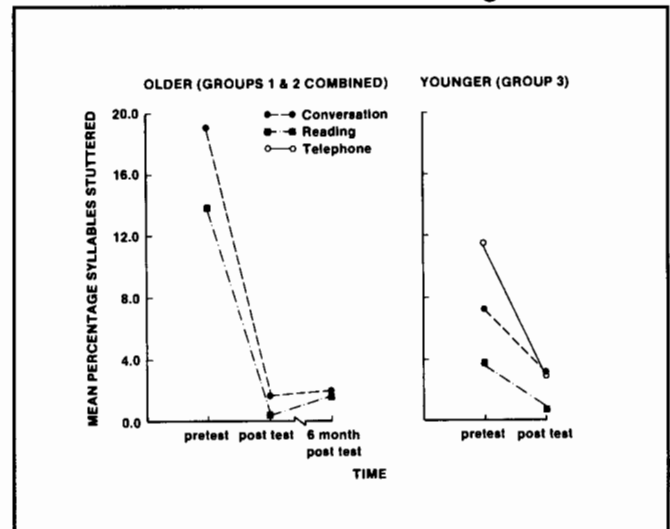
For all clients, syllables spoken per minute (SPM) generally increased, and percentage of syllables stuttered (%SS) and S24 scores decreased. This improvement occurred for conversational, reading, and telephone speech.

For the purposes of statistical analysis an overall index of fluency was computed for each client that was the average of SPM and %SS scores for conversation and reading. The mean SPM, %SS, and S24 scores were computed for each group of clients and each measurement interval. These data are presented in Table 2. Telephone scores were not included in this analysis because they were not used with all subjects in the second group. A repeated measures analysis of variance was used to analyze these data for significant main effects.

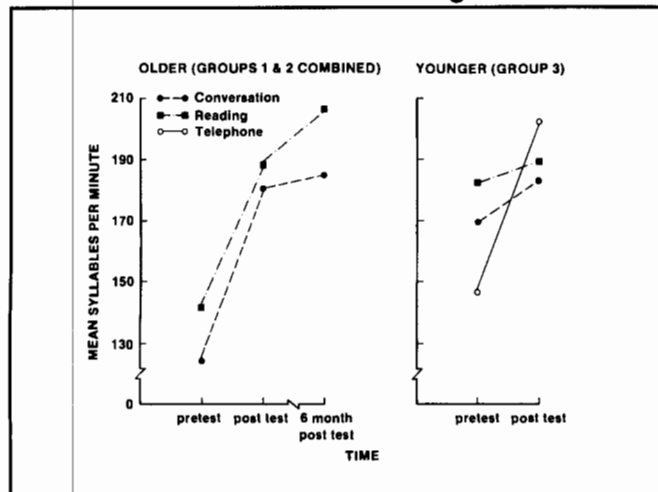
No significant differences in mean scores were found between 1984 and 1985 treatment groups for pre-therapy, post-therapy, and six month post-therapy measures, or between all treatment groups (1984, 1985, and 1986) for pre-therapy and post-therapy measures. Significant differences were found between scores obtained at different points in time for all three measures. SPM increased significantly ( $F(1,8) = 25.64, p < .001$ ), %SS decreased significantly ( $F(1,8) = 43.04, p < .002$ ),

and S24 scores decreased significantly ( $F(1,9) = 14.60, p < .004$ ) from pre-therapy to post-therapy for all three groups. Significant differences were found between pre-therapy, post-ther-

**Figure 2. Mean percent syllables stuttered over time as a function of age.**



**Figure 1. Mean syllables per minute over time as a function of age.**

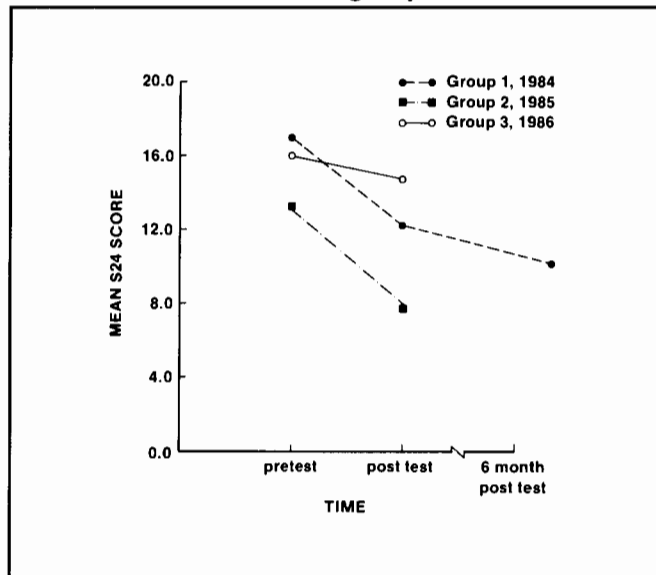


apy, and six month post-therapy for SPM ( $F(2,8) = 6.95, p < .05$ ) and %SS ( $F(2,8) = 22.32, p < .0005$ ) for 1984 and 1985 groups.

Multiple comparison tests (Tukey's studentized range test) suggested that for SPM, a significant change ( $p < .05$ ) occurred between pre-therapy and post-therapy, and between pre-therapy and six month post-therapy measures, but not between post-therapy and six-month post-therapy measures. Figure 1 shows the mean number of syllables per minute data for older and younger clients at each of the measurement periods. As can be seen in Figure 1, for the older clients the small increase in SPM occurred for both conversational and reading speech, suggesting excellent post-therapy maintenance. Figure 1 also indicates that, for the 1986 group, telephone speech improved even more from pretest to post-therapy than did conversation and reading.

For S24 scores, a Tukey analysis found a significant difference ( $p < .05$ ) between pre-therapy and six month post-therapy measures only, suggesting a more gradual rate of change in attitudes toward speech for all groups.

**Figure 3. Change in mean S24 score over time for all groups.**



For %SS, multiple comparison analysis suggests that while there are significant decreases ( $p < .05$ ) between pre-therapy and post-therapy measures, and between pre-therapy and six month post-therapy measures, there is no significant difference between post-therapy and six month post-therapy measures. As can be seen in Table 1, this is due primarily to lower maintenance on the part of one individual, Client 7. Though of statistical significance, an increase of two to three units from zero is of less practical significance than a drop from twelve to zero during treatment. However, it does suggest some difficulty with maintenance for this person.

Figure 2 shows a comparison of older and younger clients in %SS across the three measurement periods. As can be seen in Figure 2, for the older clients, an increase in %SS occurred mostly in the conversational speech task.

One significant interaction, ( $p < .05$ ), a group x measurement interval, occurred for %SS between pre-therapy and post-therapy measures. As indicated by Figure 2 and by Table 2, it appears that the 1986 group had a significantly lower initial %SS score and, thus, had less of a change in score post-therapy. This is a basement effect. By looking at Figure 1, it can be seen that the 1986 group (younger) also appears to have had a higher initial rate of SPM, though this difference was not statistically significant. In Figure 3, it appears that the 1986 group had a comparable initial S24 score level and seemed to improve somewhat less than the other groups. However, this difference in rate of improvement was not statistically significant.

One of the limitations of the statistical analyses used here is the small number of subjects in each group. Nevertheless, the effectiveness of treatment appears to have been strong enough to be detected for all groups.

In further support of the findings, fluent speech (less than five percent dysfluency) was maintained for a further five month period, such that all clients (1984 and 1985) were discharged at one year from the start of the fluency program.

## Discussion

Data analysis shows that all groups of clients demonstrated significant change in SPM, %SS, and S24 scores. This change occurred between pre-therapy and post-therapy, and pre-therapy and six month post-therapy intervals for 1984 and 1985 groups on SPM and %SS, and between pre-therapy and post-therapy for the 1986 group on SPM and %SS. The 1986 group appeared to be significantly lower on %SS stuttered at pre-therapy and thus showed less improvement (less of a decrease) on this measure.

The most significant change, as expected, was between the pre-therapy and post-therapy periods of the intensive component of the group program. The significant changes between pre-therapy and six month post-therapy indicate maintenance of fluency skills. Improvement in fluency was achieved for both age groups and was effective regardless of the severity of the stuttering.

Results suggest that the clients' attitude also improved significantly. However, the rate of improvement in attitudes was much more gradual than for fluency. Speech behaviors improved dramatically from pre-therapy to post-therapy intervals while attitude did not change significantly until six months post-therapy. Results show that it takes time for speech attitudes to become consistent with fluency or speech behaviors. This supports the findings of Andrews and Cutler (1974). These researchers also found that normal communication attitudes were not established until the clients had experienced fluent speech in outside-clinic situations following intensive therapy. The overall significant change in attitude found in this study suggests that the *Erickson/Andrews Scale of Communication Attitudes: S24* is a helpful tool for measuring and documenting attitude change.

The results of this intensive therapy program are consistent with data from other programs reported in the literature (e.g., Boberg, 1980; Rustin, 1978; Ryan and Van Kirk, 1983), thus, supporting the effectiveness of behaviorally-based fluency shaping programs. In this study, several features from other programs were combined, including the establishment phase (Armson and Fraser, 1981; Perkins, 1973b), transfer phase (Armson and Fraser, 1981; Boberg, 1980), and maintenance phase (Boberg, 1980, 1981; Ingham, 1982). Our successful results suggest that these features complimented each other. Ingham (1982) pointed to the difficulties encountered in attempting to achieve a naturalistic clinic setting. Our study showed that the typical communication environment could be

incorporated into a program to obtain as naturalistic a setting as possible. However, we cannot assess the independent impact of this treatment component on the overall success of the program.

This study represents the successful use of an eclectic approach to treatment. The authors cannot delineate specific contributions of each of the treatment components. However, this study is a realistic portrayal of how treatment is done in a clinical setting. As such, determination of the effects of individual treatment components awaits further investigation. Still, the authors would like to speculate on the usefulness of some aspects of the program that could be helpful to other clinicians.

Being housed in a mental health clinic for children and youth afforded the clinician(s) an opportunity to utilize the expertise of various professionals, and facilitated inter-disciplinary input. Consultation (psychiatric and psychological) regarding peer interaction and social skills was sought. Other professionals offered insights as to the impact of change in fluency behavior on family dynamics. Secondly, the clinic setting supplied a wide variety of on-site transfer activities prior to proceeding to community-based transfer situations. Staff participation permitted the clinician(s) to manipulate the size, makeup (professional versus paraprofessional), and location (waiting room, lounge, office) of the audience. Finally, clinic-based transfer activities allowed both overt and covert monitoring of the clients' fluency skills.

The use of outside-clinic homework requirements was accompanied by its share of difficulties. The clients did not always take responsibility to complete each homework assignment or would fail to inform parents and/or family members when their involvement was required out-of-clinic. This seems to be not unlike other behavior of adolescents when responsibilities such as "homework" are at issue. It is interesting to note that this difficulty arose, despite the clients' stated commitment to homework completion at time of candidacy selection.

The maintenance clinics are considered to be an important feature of this program. The clinics provided and facilitated ongoing support and monitoring of the clients' speech. The maintenance clinics are thought to have encouraged completion of the daily maintenance programs and resulting maintenance activities. Nonetheless, the maintenance clinic visitations did reveal several unforeseen drawbacks and difficulties. First, the clients, by and large, admitted to not using the cancellation technique for fluency maintenance. Some clients reported using a slower rate of speech during particularly difficult speaking situations, but all expressed some dissatisfaction with this component of the maintenance program. Secondly, the location of the maintenance clinics at the original

training location suggested that level of fluency may have been influenced by the conditioned cues associated with the setting. Thirdly, it became obvious that a major communication environment had not been addressed during the summer program, namely, the educational placement or school setting. Many clients expressed ongoing difficulty with maintaining fluency in the school. This suggests that cooperation between clinic-based fluency training programs and education systems is desirable in the transfer of fluency skills for adolescent and pre-adolescent stutterers.

Future investigations of treatment for nonfluency could focus on the following:

- (1) Investigation of the effect of individual treatment components on treatment success (e.g., family involvement, multi-disciplinary setting);
- (2) Ways to provide incentives for young stutterers to comply more closely with homework assignments;
- (3) Determination of the desirability of cancellation as a fluency-maintenance technique; and
- (4) Investigation of the integration of clinical and educational service provision to extend clinic-established fluency into the school setting even further.

Despite these areas of concern, the treatment and maintenance effects of this intensive group fluency program were very robust. It remains a strongly effective approach to treating the young stutterer in a community setting.

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