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The Relationship of Attitudes and  
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THE RELATIONSHIP OF ATTITUDES  
AND INTENTIONS TO BEHAVE  
TO THE ACQUISITION OF FLUENT  
SPEECH BEHAVIOUR BY STAMMERERS

By

Trudy Mildon Stewart

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## ABSTRACT

### THE RELATIONSHIP OF ATTITUDES AND INTENTIONS TO BEHAVE TO THE ACQUISITION OF FLUENT SPEECH BEHAVIOUR BY STAMMERERS

By

Trudy Mildon Stewart

This study applied the Fishbein and Ajzen model of attitude, intention and behaviour to stammerers' evaluations and use of their disfluent speech and a fluency controlling speech pattern. Subjects were eight adult stammerers who participated in an eight week group therapy programme. The model advocated a positive relationship between subjects' attitudes and intention to use their own disfluent speech and a fluency controlling technique. A positive relationship was also hypothesized between their intentions to use disfluent speech and their intentions to use the fluency controlling technique and their fluency gains measured after the completion of the therapy programme. The results supported the relationships proposed by the model and confirmed its value in predicting fluency gains on the basis of pre-therapy attitude and intention scores.

Dedicated to Ewan, especially, and to my parents in appreciation of their love and support. Also dedicated to my colleague Jackie Turnbull and the stammering groups at Leeds General Infirmary 1977-1980, who stimulated my interest in this area.

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## INTRODUCTION

Previous generations of researchers in the field of stammering have concerned themselves with analysing the nature of stammering, its physiological and motor components, psychological and social implications and linguistic features. More recently the focus has been on extending stammering theories into the realms of therapy, and emphasis has been placed on designing therapy programmes which yield fluency perceived as normal by stammerers and listeners alike. In recent years two major therapeutical approaches have been delineated. The "stutter more fluently approach" is the first of these general approaches and essentially involves desensitization of the person to his stammering. Increased monitoring of disfluencies, followed by modification, is systematically taught and avoidance behaviour is subsequently reduced. Williams (1979) attributes the success of this approach in facilitating behaviour change to two factors:

- 1) it requires that the stutterer practice staying in the time framework of the present and 2) it offers the stutterer the opportunity to test and resolve the fears associated with stuttering.

In the second approach, "speak more fluently", the major concern is with replacing stammering, usually by counter-conditioning, with fluent speech. The goal of fluent speech is achieved by teaching the stammerer to use a particular technique. Subsequently, the speech pattern is then shaped so that it approximates, as far as possible, normal

sounding speech. Williams (1979) attributes the success of this approach to the following factors:

1) when stutterers utilize the special techniques they must attend to the special way they are talking, and when they do this they are staying in the present, and 2) the approach utilizes strict and consistent contingencies for responses in massed practice situations.

Of the two approaches, the "speak more fluently" approach appears to be gaining increasing support among clinicians. One of the latest therapy programmes can be viewed as a further advancement of this general mode. The Shames and Florance (1980) regime applies specific behavioural principles which develop the stammerer's responsibility for carrying out his or her own therapy. Their goals are stated as the establishment of "stutter free" speech and an accompanying self-image that is compatible with this new speaking behaviour.

Regardless of the therapeutic methodology employed for changing the stammerers' behaviour, the main difficulty facing speech clinicians today is that of the transfer of fluency attained in clinic. Improving fluency, by whatever method or technique, is the least problematic task encountered in a typical speech therapy programme.

Having the stammerer extend his or her new-found fluency and transferring it to "real life" settings has met with numerous setbacks and failures. As observed by Hanna and Owen (1977):

The present state of stuttering therapy programs enables the clinician to render many stutterers virtually stutter-free in the clinic. A major clinical problem, however, is the transfer of fluency to non-clinical situations and its maintenance over time.

The stammerer-patient is, thereby, faced with the frustrating situation of achieving a good fluent speech pattern in clinic with the therapist but failing in his or her attempts to extend this speech pattern into a natural environment. Over the years various methods have been applied to the transfer stage in an attempt to improve the degree of success, but as Boberg et al. (1979) comment:

...the dearth of published studies providing accurate information is an indication of how well fluency is maintained in the post treatment environment.

Typical problems have been chronicled by Perkins (1979). He groups stammerers who have difficulties at this therapeutic stage into four sections:

1. People who have tried hard but failed to master the skills.
2. People who understand the procedures perfectly yet cannot make them work.
3. People who profess great desire to sound normal yet loose control of their speech in daily life.
4. People who have used the new skills successfully yet prefer to continue stuttering.

Boberg and Sawyer (1977) introduce two additional categories, namely those persons who dropped out because the activities at this stage were too threatening and those who no longer viewed therapy as necessary because of their increase in fluency.

For several decades researchers have considered a variety of explanations for the difficulties associated with the acquisition and transfer of fluency. One major issue has been that of attitude change, and there have been frequent attempts to relate the speech behaviour change with an associated change in affect. Early studies by Johnson (1932, 1934a, 1934b) and Kimmell (1938) investigated stammerers'

attitudes towards stammering and found attitude to have widespread effects upon social life, home and school behaviour. Also in the thirties, researchers at the University of Iowa were involved in changing stammerers' attitudes about stammering by reducing fears and avoidances and preparing the client for later modifications of disfluencies. This attitude orientation approach was further developed by Gregory (1959), Williams (1971), and Sheehan (1975). Following the emergence of behaviour modification programmes in the sixties, there has been a renewed interest in stammerers' attitudes and attitude change in therapy. This has led some researchers to suggest a relationship between attitude and attitude change and the efficacy of therapeutic practise. Guitar (1976), for example, found that "stutterers' attitudes may be related to long term improvement." His study found that those stammerers with more negative attitudes as measured just prior to treatment were most likely to have high levels of stammering a year later, even though all subjects left therapy entirely fluent. Guitar and Bass (1978) also found that stammerers who did not show a normalization of communication attitude during treatment had poorer long term gains in percentage of stammered syllables than subjects who did show such normalization. Despite these indications of the importance of a person's attitude to long term therapeutic success, researchers have not yet defined those aspects of attitude which are crucial to the acquisition and maintenance of fluent behaviours. This is emphasized by Ryan's (1979) statement:

We need to adopt or develop an attitude measure that will be valid and reliable and will have a predictive function for determining the outcome of therapy.

In other areas theorists have attempted to define the states of mind which are precursors to behaviour. In the field of psychology focus has been placed on attitudinal concepts in relation to behaviour and behaviour change. Fishbein and Ajzen (1975) proposed a conceptual framework which regards attitude as a significant predictor of behaviour. The foundations for the model lie in the distinction between beliefs, attitudes, intentions and behaviours, which are defined by Fishbein and Ajzen (1975) in the following way. Belief refers to "a person's favourable or unfavourable evaluation of an object". This is measured on a dimension of subjective probability which relates an object to an attitude. People may differ in their perception of the likelihood that the object has the attribute in question, and this is referred to as "belief strength". Beliefs form the informational base that determines the person's attitudes, intentions and behaviours. Their acquisition may be based upon observation initially, and further acquisition progresses sequentially on the basis of beliefs already held.

Attitude is defined as "the amount of affect for or against some object .... measured by a procedure which locates the subject on a bipolar affective or evaluative dimension." (Fishbein and Ajzen 1975). Thus, beliefs represent the information available about the object, whereas attitudes refer to an evaluation of an object. Attitude towards a particular object or person is based on salient

beliefs about that object and will carry with it the positive or negative belief evaluations. The Fishbein framework goes further and suggests that a specific attitude is related to a set of beliefs rather than to any specific belief (i.e., a many: one relationship).

Behavioural intention refers to "a person's intention to perform various behaviours." (Fishbein and Ajzen 1975). As with beliefs, strength of intention is indicated by the person's subjective probability that he will carry out the specific behaviour. It also has a similar relationship to attitudes as the attitude toward an object will usually be related to a whole set of intentions (a one: many relationship).

Finally, behaviour is defined as "one or more observable actions performed by the individual and recorded in some way by the investigator." (Ajzen and Fishbein 1977). This rules out questionnaires and verbal responses which may be used to infer attitudes, etc. Behaviour is seen to correspond to each intention. Thus, attitude toward an object will again be related to the total behavioural pattern rather than a specific act. Therefore, according to this model, a specific behaviour such as fluent speech is determined by the person's intention to perform that behaviour, and is heavily influenced by the person's attitude toward the behaviour. In summary, the theory underlining this model concerns itself primarily with the prediction of a behavioral intention, because it is this component which is thought to mediate overt behaviour.

This framework has been successfully applied in a number of areas. For example, Thach (1974) examined the use of public health service



facilities and the development of communication campaigns. The appropriateness of the model was affirmed as it was found that intentions could be predicted from measurement of attitudes and normative beliefs. Other reviews of research utilizing the Fishbein model have appeared in both the social psychology (Ajzen and Fishbein 1973) and the consumer behaviour literature (Ryan and Bonfield 1975). These reviews also conclude that the model offers satisfactory predictive value, in terms of predicting behavioural intentions from attitudinal components and behaviour from behavioural intentions.

Despite these attempts to define attitudes and other interactive components more precisely, little has been done to specify those attitudes or predispositional states crucial to the acquisition and maintenance of fluency. In the field of speech pathology the earliest attempts to evaluate attitudes used assessments which were not designed specifically for the speech and language disordered population. With stammerers the Knowler Speech Attitude Scale and the Knowler Speech Experience Inventory (Knowler 1938) were two such tests.

The Iowa Scale of Attitude Toward Stuttering (Ammons and Johnson 1944) was designed specifically to assess the stammerers' attitudes toward their own disfluencies, specifically their tolerance or intolerance of stuttering using a Likert-type scale. However no evidence of validity of the measures has been shown and as Johnson, Darley and Spriestersbach (1963) note:

The score itself is of limited value, largely because it is obviously easy for the subject, if he is so inclined, to make responses that "look good" -- or that "look bad" -- rather than responses that reflect his attitude in an honest or valid fashion.

They also recommend that the test be used as a guide for interviewing and counseling rather than an assessment tool. Shumak (1955) reported on a scale used to assess stammerers' reactions to speech situations in which they were required to rate 1) the tendency to avoid, 2) the like or dislike of a situation, 3) the stammering severity in a situation and 4) the frequency with which the situation was encountered. Critical appraisal of the scale revealed an attempt to assess not one specific attitude but a potpourri of variables which include not only attitude items (e.g., attitude to situations) but also behavioural evaluations (e.g., severity of stammering and avoidance behaviour). Similar problems have emerged in scales devised in recent years. The Erickson S scale (Erickson 1969) and the shorter version, the S24 scale (Andrews and Gutler 1974), were devised in an attempt to provide a measure of communication attitudes which were relatively free of error and with the interpretation of item responses based on "empirically demonstrated relationships." (Erickson 1969). Their aim was to provide an index of the extent to which the stammerers' attitudes to communication differed from those of normal fluent speakers. However, the items included seem to reflect many variables. For example, the item "I am a good mixer" appears to be more indicative of an attitude to self or self concept, whereas an attitude to listeners appears to be what is being assessed in the item "People sometimes seem uncomfortable when I am talking to them."

It would seem reasonable to suggest that the stammerer should have a positive predispositional state or attitude to fluency before

one would expect him or her to use fluent behaviour consistently, but the exact nature of such a state has yet to be defined. Fishbein and Ajzen's model seems a useful framework that could be applied to this problem. In the case of successful clients, one might hypothesize that the stammerers present themselves for therapy with inconsistencies in their conceptual framework and view therapy as a way of resolving these inconsistencies. For example, the clients may believe themselves to be stammerers but have the attitude that stammering is unacceptable. Their intention, therefore, would be to stammer in speaking situations, based upon these beliefs, and the subsequent behaviour would be disfluent. At the end of successful therapy these inconsistencies should be resolved. The clients would believe themselves to be fluent speakers, while retaining the attitude that stammering is unacceptable. Their intention would be to speak fluently in speaking situations, and speech behaviour would be fluent. For those more unsuccessful clients, those who may have difficulty with therapeutic techniques or have the problems in transferring fluent speech behaviours outside clinic, the incongruities may remain unresolved. For example clients may retain the belief that they are stammerers and feel that stammering behaviour is preferable to the methods of control outlined in therapy. Their intentions would be to stammer and their behaviour continue to be disfluent. Other clients could demonstrate the predispositional states such that they believe themselves incapable of behaviour change but still have the attitude that fluent speech is preferable. Their intention would be stammering behaviour and their speech remain disfluent. In

a final example, clients may show little behavioural or attitude change retaining all the pre-therapy beliefs, attitudes, intentions and behaviours. Thus, in all three examples the clients would show reduced acquisition of fluency with accompanying poor transfer and maintenance of those skills.

### Purpose and Hypotheses

In view of the relationship between attitude and changes in speech behaviour, there is a need for some pre-therapy measurement of attitudes which could serve as an indicator of potential behaviour change. Current attitudinal scales employed with stammerers appear to be insufficiently definitive in isolating those aspects crucial to the acquisition and maintenance of fluency. The Fishbein and Ajzen model, however, has provided one way in which behaviour may be related to attitude in a predictive manner and appears to be readily applicable to the area of speech pathology. The purpose of this study, therefore, is to correlate two components of the Fishbein and Ajzen model, namely attitude and intention to behave, with behavioural changes in fluency in stammering subjects.

This purpose has generated the following research hypotheses:

1. There is a positive relationship between stammerers' attitude to their own speech and their intention to use their own speech.
2. There is a positive relationship between stammerers' attitude to a fluency controlling technique and their intention to use such a technique.

3. There is a positive relationship between stammerers' attitude to and their intentions to use a disfluent speech pattern and lack of gain in fluent speech behaviour.
4. There is a positive relationship between stammerers' attitude to and their intentions to use a fluent speech technique and gain in fluent speech behaviour.

## PROCEDURES

### Subjects

The subjects of this study were eight adult stammerers, six males and two females. Their ages ranged from 18 to 44 years, with a mean age of 27.6 years. The stammerers were selected for inclusion after demonstrating no severe psychological disturbance, no mental retardation and normal hearing based on subjective observations made by the experimenter during an initial interview. The range of their stammering difficulties, based upon the Stuttering Severity Index (S.S.I. Riley, 1972), was from mild-moderate to severe. All of the subjects had had previous speech therapy for their disfluencies and these programmes included a wide variety of therapeutic approaches.

### Therapy

All eight subjects were enrolled in an eight week programme of group speech therapy and all signed a contract (of Appendix A) indicating their commitment to attend and participate in all group therapy sessions. The experimenter acted as the speech clinician for the entire group, being present during all therapy sessions and coordinating the daily activities. Other graduate clinicians were used to assist in the various activities. The therapy programme followed the basic format outlined by Shames and Florance (1980) with some modifications based on the experimenter's personal clinical

experience. The initial four weeks of therapy were devoted to Phase I of the Shames and Florance programme. The sessions were held four times per week with each session lasting approximately two hours. The goal was to establish volitional speed control by implementing the technique of prolonged speech. This procedure is accepted by many clinicians and researchers, since, as Andrews et al. (1980) state:

The evidence suggests that treatments based on training the stutterer in prolonged and gentle onset techniques are superior to other types of treatment.

Unlike the Shames and Florance programme, a Delayed Auditory Feedback (D.A.F.) unit was not used to establish this initial control. Instead the prolonged speech was broken down into eight components which consisted of:

1. prolongation of individual speech sounds
2. continuous vocalization throughout speech production
3. light contacts of the articulators
4. regular breathing
5. flow of speech within words and across word boundaries
6. regular pauses
7. general body relaxation
8. regulation of speed (i.e., adherence to specified number of syllables per minute).

The subjects were taught to identify and monitor each of these components in their own speech and in the speech of the other group members.

The technique was introduced to the group using a demonstration tape prepared and recorded by the experimenter at 60 syllables per minute (s.p.m.). The subjects then worked through several practise exercises, moving from reading to spontaneous speech, until they were able to meet the criterion activity of two minutes of fluent spontaneous speech using the technique within five s.p.m. of the specified rate. If any disfluencies were noted within the two minute speech sample, the activity was repeated until the subject attained the criterion. A disfluency was defined according to Wingate's (1964) definition of stammering which includes audible or silent repetitions or prolongations of sounds, syllables or monosyllabic words. Objectives for therapy were set up on a weekly basis culminating in this criterion activity (cf. Appendix B). Subjects progressed through four additional speaking rates: 80s.p.m., 100s.p.m., 130s.p.m., and 150s.p.m., satisfying the 100% fluency two minute criterion before being allowed to increase their rate. During Phase I, activities were carried out in pairs and small groups to maximize speaking time and with the total group to encourage group interaction, responsibility, support and motivation. Subjects also enlisted the help of one other person with whom they spent a significant proportion of time outside the clinic. This significant other (S.O.) was involved in monitoring the client's speech and providing the clinician with reports concerning their home practise exercises. The nature of these exercises was generally consolidation of work previously carried out in the group, for example, reading or in conversation with the S.O. at the speed currently employed



by the group. No practise was given that had not previously been monitored by the clinician.

Phases II and III of the Shames and Florance approach were introduced during the last four weeks of the programme. Phase II, that of self reinforcement, required each subject to carry out four self regulatory behaviours:

1. Self instruction      - Motoric signal to emit monitored or unmonitored speech
  2. Self monitoring       - Client deliberately emits socially acceptable rate and continuous phonation
  3. Self evaluation       - Client self evaluates correctness of her response
  4. Self consequence     - Client rewards herself with unmonitored speech.
- (Shames and Florance 1980)

These four behaviours were introduced simultaneously and implemented with the faster or more acceptable rates of speech within Phase III activity schedule. Phase III, the transfer phase, involved the subjects gradually and systematically extending their use of the technique into non-clinical situations. The programmed activities continued to be carried out in pairs, small groups and with the total group. The focus of these sessions was to increase the "stability" of the subjects' technique at 150s.p.m. Sessions centred around such fluency distractors as difficult listeners, increased situational stress, emotional topics discussed in the presence of strangers and during video taping. No formal criterion activities were used at this stage; but frequent feedback and reinforcement was provided by group members, graduate clinicians, and the experimenter. When the use of the technique fell

below the standard established by the group, the subject was asked to repeat the activity. In addition to the activities outlined above, some parts of sessions were held in non-clinical settings with subjects required to maintain the technique. In order to reflect the transfer of emphasis from practise within the clinic to practise in non-clinical situations, group therapy sessions were reduced to two two-hour meetings per week and amounts of home practise increased. Assignments were allotted to the individual subjects based on a hierarchy of difficulty which they devised themselves.

#### Data Collection and Reducation

All subjects underwent the following battery of assessments prior to the eight week therapy programme (pre test) and upon completion of the programme (post test). Each subject was tested individually, and the total evaluation took approximately 30 minutes.

#### Fluency Evaluation

The subject's fluency was evaluated from a three minute spontaneous speech sample. At the beginning of the initial and final interview each subject was asked by a previously unencountered adult female to describe a black and white stimulus picture ("Cookie Jar Theft" from the Boston Differential Diagnosis of Aphasia, Goodglass and Kaplan 1972). The sample was gathered at the beginning of the interview to reduce adaptation of speech behaviour resulting from familiarity of the situation. A picture description task was used to increase standardization of content while maintaining spontaneity of utterances.

The speech sample was recorded using a microphone and a Marantz stereo cassette (deck model number 5020). The speech sample was analysed in terms of the number of words spoken, total speaking time, words spoken per minute, number of disfluent words and the percentage of total disfluency. Disfluencies were classified using Wingate's (1964) definition of stammering. An additional formal assessment of stammering severity was obtained by administering the Stuttering Severity Instrument (S.S.I.) (Riley 1972). This scale provides a percentile score and severity rating by assessing three categories of stammering behaviour, namely, frequency of disfluencies measured as a percentage, average duration time of the three longest blocks and a rating of the stammerer's physical concomitant movements (cf Appendix C).

#### Stammerers' Communication Attitudes

The revised Erickson S24 assessment of communication attitudes (Andrews and Cutler 1974) was also administered. This scale has been widely used by studies addressing the question of stammerers' attitudes and, thus, served as a referent point with which to compare the results of the present study (cf Appendix D).

#### Stimuli Used to Evaluate Attitudes and Intentions

Two stimulus tapes were used for both the assessment of stammerers' attitude and intention. One tape consisted of the subject's three minute spontaneous speech sample collected in the initial interview, as described in the previous section. This was identified as "own speech" tape. The second tape was a three minute recording of a male

speaker using the technique of prolonged speech used in the therapy programme at a speaking rate of approximately 130s.p.m. This tape was recorded on the same equipment and used the same stimulus picture as the disfluent tape samples and was identified as the "technique speech" tape. The same tapes were used during the pre test and post test evaluations. The order of presentation of the two stimulus tapes and of the attitude and intention scales and questionnaires was counterbalanced.

#### Procedure for the Evaluation of the Subjects' Attitude to Fluent and Non-Fluent Speech

The first three minute sample tape was presented to subjects individually from the cassette tape recorder (Marantz model 5020) through a set of Pro/4AA Koss headphones. Using a Likert scale format, they were asked to think of a specific situation in which they

1. would very much dislike speaking in that technique
2. would dislike speaking in that technique
3. would neither dislike nor like speaking in that technique
4. would like speaking in that technique
5. would very much like speaking in that technique

They recorded a situation under the corresponding interval on the attitude scale. The statements used for this scale referred to the subject's favourable or unfavourable evaluation of the speech on the taped sample.

A similar method was used by Gardner and Thompson (1959) in their Syracuse Scales of social relations. This method allowed subjects to determine their own points of reference for the scale. Using this

evaluative approach, subjects were then asked to rate their attitude toward various speaking situations if they had to talk in the manner demonstrated on the tape. The thirty specific situations were drawn in part from the Southern Illinois University Speech Situation Checklist (Shumak 1955). The subjects were required to assign a number from 1 to 5 to each individual situation listed on the questionnaire using the scale they had just determined. (cf Appendix E).

These scores were averaged by the experimenter to provide a mean attitude score for each subject. The total procedure was then repeated for the second stimulus tape.

#### Procedure for the Evaluation of the Subjects' Intention to Use Fluent and Non-Fluent Speech

The same two stimulus tapes used in the evaluation of attitude were used in the assessment of intention. Subjects listened to each sample from the cassette recorder via headphones and determined a second frame of reference for an intention scale. On this scale which corresponds to 5 intervals (1-5), they were asked to think of a specific speaking situation in which they

1. would never use that technique of speech
2. would seldom use that technique of speech
3. would occasionally use that technique of speech
4. would frequently use that technique of speech
5. would always use that technique of speech.

The statements used on this scale referred to the subjects' own evaluation of the probability that they would perform the speech behaviour demonstrated on the stimulus tape. Subjects then rated their intention to speak as demonstrated on tape, in the 30 speaking situations described above, using the rating scale of 1 to 5 for each situation (cf Appendix F). A mean intention score for each subject was calculated by averaging the scores from these 30 situations. The total procedure was then repeated for the second stimulus tape.

## RESULTS

The following are the results based on the pre and post test evaluations. An appraisal of the reliability and stability of the attitude and intention scales introduced in this study will be made along with the validity of the Fishbein and Ajzen model. The behavioural fluency data, results of the S24 and attitude and intentions scales will follow. The final section will report on the correlations computed on the data.

### Reliability and Validity of the Model

#### Reliability of the Attitude and Intention Scales

The internal consistency reliability for both attitude to own speech and attitude to technique speech was computed using the coefficient alpha. Alpha is a statistic which reflects the degree of random response error and it was used here to examine the average inter-item correlation among the thirty items. Its properties are identical to the correlation coefficient and it may be interpreted as such. The results, which are summarized in Table 1, showed that attitude to own speech and attitude to technique at the pre test evaluation had a correlation of  $r=.97$ . During the post test evaluation attitude to own speech had a higher correlation,  $r=.98$  and attitude to technique speech a correlation of  $r=.90$ .

Table 1

Summary of the attitude and intention  
internal reliability alpha co-efficients obtained at the  
pre test and post test evaluations

	Pre Test	Post Test
Attitude to own speech	$r = .97$	$r = .98$
Attitude to technique speech	$r = .97$	$r = .90$
Intention to use own speech	$r = .94$	$r = .97$
Intention to use technique speech	$r = .97$	$r = .93$

The reliability coefficient for both intention to use own speech and intention to use technique speech was computed by correlating the thirty individual items in the same way, and a summary of the results can be found in Table 1. Pre test analyses indicated that intention to use own speech had a correlation of  $r=.94$  and intention to use technique a correlation of  $r=.97$ . The correlation for intention to use own speech on the post test was  $r=.97$ , whereas a .93 correlation was obtained for intention to use technique. With the correlations all .90 or higher, the reliability of both the attitude and intention measures was considered adequate for this investigation.



### Stability of the Attitude and Intention Scales

Stability coefficients were computed on all the attitude and intention measures. Using the subjects' mean attitude and intention scores at the pre and post test evaluations, an analysis of the measure's reliability over time was obtained. The results showed a positive correlation for both attitude measures, attitude to own speech ( $r=.84$  at  $p < .05$ ) and attitude to technique speech ( $r=.85$  at  $p < .05$ ). Lower correlations were obtained for the intention measures, intention to use own speech ( $r=.69$  at  $p < .05$ ), and intention to use technique ( $r=.23$  at  $p < .05$ ).

### Validity of the Model

The Fishbein and Ajzen model proposes a positive relationship between attitude and intention to behave and also between intention to behave and overt behaviour. With regard to validating these relationships, correlations were calculated between the attitude and intention scales at the pre test and post test evaluations. This was carried out using each of the eight subjects' mean values from the appropriate attitude and intention scales. The pre test correlations were  $r=.74$  for attitude to and intention to use own speech and  $r=.72$  for attitude to and intention to use technique. At the post test evaluation a correlation of  $r=.91$  was obtained between the two scales using their own speech, whereas a lower correlation of  $r=.32$  occurred between attitude to and intention to use technique speech.

Similarly, correlations were computed between pre test and post test intention to use own speech and intention to use technique speech scores and fluency gains. This was calculated using each of the subjects' mean value from the intention scale and the subjects' mean percentage fluency gains. A summary of the results can be found in Table 2. A correlation of  $r = -.38$  was obtained for intention to use own speech at the pre test and fluency gains and  $r = -.44$  at the post test. A correlation of  $r = .76$  was obtained for intention to use technique at the pre test and  $r = .65$  at the post test.

Table 2

Summary of the correlation coefficients  
obtained at the pre and post test  
evaluations for intention and fluency gains.

	Pre test	Post test
Intention to use own speech	$r = -.38$	$r = -.44$
Intention to use technique	$r = .76$	$r = .65$

#### Summary of the Scores of the Variables

The data obtained from the eight subjects' fluency evaluations, S.S.I.'s, and attitude and intention scales in the pre and post tests is summarized in Table 3 and will be referred to throughout this section.

Table 3

Summary of the raw data for the eight subjects' fluency, attitude, and intention evaluations (pre and post test)

	$\bar{x}$ % Disfluencies		S. S. I.		Words Per Minute		Erickson S. 24		$\bar{x}$ Attitude To Own Spch		$\bar{x}$ Attitude to Technique		$\bar{x}$ Intention To Own Spch		$\bar{x}$ Intention to Technique	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
B.A.	6	7	11	13	135	113	20	13	4.5	4.6	3.9	4.7	1.2	2.7	1.4	2.5
R.B.	9	3	17	7	111	132	24	20	2.1	2.4	3.2	3.0	3.6	3.6	3.9	3.4
B.B.	14	4	25	14	63	113	16	7	3.6	2.1	3.9	2.4	2.8	3.7	3.9	3.6
R.C.	14	2	19	10	107	131	9	10	2.8	2.2	2.5	1.6	2.0	2.9	2.0	4.7
M.H.	17	4	22	9	104	127	10	3	3.1	3.1	3.1	3.6	2.7	3.9	3.5	4.2
J.J.	29	13	26	19	83	88	16	7	1.3	1.3	2.9	2.1	4.0	4.0	2.2	3.8
G.K.	35	5	25	11	92	116	22	14	2.1	2.2	2.7	2.7	4.3	3.8	4.2	3.6
S.S.	75	8	26	14	44	116	17	13	1.4	1.5	1.3	1.5	4.2	4.0	4.4	4.0
Group Mean	25	6	21	12	92	117	17	11	2.6	2.4	2.9	2.7	3.1	3.6	3.2	3.7
Standard Deviation	22	4	5	4	29	14	5	5	1.1	1.0	0.8	1.1	1.1	0.5	1.2	0.6
Range	6-75	2-13	11-26	7-19	44-135	88-132	9-24	3-20	1.3-4.5	1.3-4.6	1.3-3.9	1.5-4.7	1.2-4.3	2.7-4.0	1.4-4.4	2.5-4.7

### Fluency Evaluation

The results of the pre test spontaneous speech sample showed that the subjects initially presented a wide range of stammering behaviours. The range of disfluency percentages in the three minute picture description task was 6% to 75%, with a group mean of 25%, whereas the severity rating on the Stuttering Severity Index (S.S.I.) ranged from mild-moderate to severe. Since a moderate stammerer on the S.S.I. is represented by a total raw score of 16 and above, six of the eight subjects used in this investigation were moderate to severe stammerers. In the post test fluency evaluations the range of percentage disfluencies in the spontaneous speech samples was between 2% and 13%, with a group mean of 6% and the severity rating ranged from mild to moderate. One group member, B.A., increased her mean percentage disfluencies by 1%, from 6% to 7%. The remaining seven subjects increased fluency by an average of 19%, with a range of 6% to 67%. Coupled with the increase in fluency, there was also a general increase in average words per minute. The mean gain for the group was 25 words per minute (w.p.m.).

### "Communication Attitudes" (S24)

The group mean on the pre test scores for the revised Erickson S24 assessment of communication attitudes was 17 with a range of 9 to 24. The post test assessment showed a group mean of 11, and the range of scores was from 3 to 20. While one subject, R.C., increased his score by 1 point, this proved to be the exception as all other subjects decreased their scores by an average of 6 points.

### Attitude Evaluation

In both the pre and post tests the assessment of attitude to the subject's own speech and to technique speech showed a wide range of mean scores within the possible 1 to 5 scale. The group mean pre test score for attitude to own speech was 2.6, and this decreased slightly to 2.4 in the post test. Five of the individuals displayed a pre test to post test change score of 0.0 or 0.1. However, the high variability in range of the individual change scores was not reflected in the subject's mean score; for example, subject B.B. decreased 1.5 points, from 3.6 to 2.1, in the post test. The group mean pre test score for attitude to technique speech was 2.9 and the post test mean was 2.7. There was also a wide range in change scores of the subjects' attitudes to the technique, the range being from 0.2 (subject S.S.) to -1.5 (subject B.B.). Subject G.K. demonstrated no change.

### Intention Evaluation

In both pre and post tests the assessment of intention to use the subjects' own speech and to use technique speech showed a wide variety of individual scores. The group mean pre test score for intention to use own speech was 3.1; this increased to 3.6 in the post test assessment. As with the attitude scores, there was much individual variability, with the range of change scores occurring between 1.5 (B.A.) and -.5 (G.K.), with subjects R.B. and J.J. showing no change. The group mean pre test score for intention to use technique speech was 3.2, and this also increased to 3.7 in the post

test. The range of change scores for this scale was 2.7 (R.C.) to -.6 (G.K.).

### Correlations Between Fluency Behaviours and Attitude and Intention Scales

The individual's initial severity may have had a biasing effect on correlations between stammering behaviour and the attitude and intention scales employed in this study. A subject with a high stammering percentage initially would have a greater potential for change than someone with a low stammering percentage. For example, subject S.S., who demonstrated 75% disfluency during pre therapy conditions had a much greater potential for change than the subject R.B. who illustrated 9% disfluencies on the pre test evaluation. Thus, the individual's percentage change from the pre and post test scores for fluency and stammering severity (S.S.I.) was calculated to allow for the initial severity level. The following computation was made:

$$\frac{\text{Pre test \%} - \text{post test \%}}{\text{pre test \%}} \times 100$$

Thus, subjects S.S. and R.B. showed an 89% and 67% gain in fluency, respectively, using the transformation outlined above (i.e., "transformation" score) as opposed to 67% and 6% respectively without the transformation (cf Table 4). The use of these "transformed" scores enabled subjects' scores to be compared with one another using similar criteria. (There was no necessity to carry out a transformation on the attitude and intention scores as subjects' initial severity had been

accounted for as they determined their own anchor points on the scales initially.)

In relation to the models of successful and unsuccessful clients proposed earlier, it was thought relevant to further identify the levels of attitude and intention within the group members. Subjects were thus divided into those with high or low attitudes and/or intentions during the pre test. A high category was defined as having a mean score of 3.0 or greater on the 1 to 5 point scale and a low category was defined as having a mean score below 3.0 on the same 1 to 5 point scale.

#### Attitude, Intention and Fluency Gains

Using the scores outlined above, a comparison was made between the behavioural indicators of therapeutic progress and those subjects with high or low attitude or intentions on the pre test. The results are summarized on Table 4. Those six stammerers who had low attitude to their own speech and had low intentions to use their own speech showed an average gain in fluency of 77%, whereas those two subjects with a high attitude to and high intention to use their own speech demonstrated a 29% increase. Those subjects with a high attitude to the technique speech or a high intention to use technique speech showed greater fluency gains (74% and 78% respectively) compared to those subjects with a low attitude (55%) or a low intention (47%) to use technique speech.

#### Attitude, Intention and Stammering Severity (S.S.I.)

A similar comparison was made using the mean percentage reduction in S.S.I. scores and high and low attitude and intention scores.

Table 4

Comparison of fluency evaluations in subjects with high and low attitudes and intentions to behave.

No. of Subjects	2	6	2	6	4	4	3	No. of Subjects
Mean % Gain in Fluency	29	77	29	77	74	55	47	Mean % Gain in Fluency
Mean % Reduction in S.S.I.	22	49	22	49	47	33	19	Mean % Reduction in S.S.I.
Mean % Reduction in S24	46	32	46	32	33	38	27	Mean % Reduction in S24
	High	Low	High	Low	High	Low	High	
	Attitude to own speech (pre test)		Intention to use own speech (pre test)		Attitude to technique speech (pre test)		Intention to use technique speech (pre test)	



The results are summarized in Table 4. Those subjects with a low attitude to and/or low intention to use their own speech had a mean percentage of S.S.I. reduction of 49%, whereas the high attitude to and/or high intention subjects had reductions averaging 22%. Those subjects with high attitude or high intention to use the technique speech, meanwhile, showed a greater reduction of severity (47% and 53% respectively) than those subjects with a low attitude (33%) and low intention (19%) to use technique speech.

#### Attitude, Intention and "Communication Attitudes" (S24)

An additional comparison was made using the mean percentage reduction in S24 "communication attitudes" scores and high or low attitude and intention scores. Subjects who had a high attitude and intention to their own speech showed greater reduction in the Erickson scores (46%) than those subjects with low attitude and intention (32%). With regard to technique speech the results were conflicting. The comparison revealed that subjects with low attitude to and high intention to use technique speech showed greater reduction in S24 scores (38% and 41% respectively) than those subjects with high attitude and low intention to use technique speech (33% and 27% respectively).

#### Multiple Regression

A multiple regression analysis was implemented on the data and are summarized in Table 5. The pre test scores of attitude to own speech, intention to use own speech, attitude to technique speech,

intention to use technique speech and the Erickson S24 scores were the predictor variables, and the percentage fluency gain measured during the spontaneous speech sample was the dependent variable. (It should be noted that the Erickson S24 scale is not normally employed as a predictor of fluency gains but is usually used purely as a measure of attitude and attitude change.) Intention to use technique was found to have the highest correlation with fluency gain, having an  $r$  score of .76 at .03 level of significance. The only other variable to have a positive correlation with fluency gains was the attitude to technique speech ( $r=.56$ ,  $p$  value of .53). Both the attitude and intention to use own speech scores and the Erickson S24 scale were negatively correlated with fluency gains, with  $r$  values of  $-.46$ ,  $-.38$  and  $-.11$  respectively. Combining two or more variables to predict fluency gains is exemplified in the multiple  $r$  column of Table 5. The  $r^2$  change column shows that the Erickson S24 adds a further .11 to the multiple  $r$  when added to the predictor variable of intention to use technique speech but at a  $p$  value of  $>.05$ . The remaining three variables added little to the overall  $r$  also at  $p= >.05$ .

Table 5

Summary of multiple regression  
analysis using subjects' pre test  
scores to predict fluency gains

	Simple r	Multiple r	r <sup>2</sup> Change	Signif- icance (Individual Beta)
Intention to use technique speech (pre test)	.76	.76	.58	.03
Erickson S24 (pre test)	-.11	.83	.11	.24
Attitude to own speech (pre test)	-.46	.84	.02	.63
Intention to use own speech (pre test)	-.38	.85	.02	.68
Attitude to technique speech (pre test)	.56	.89	.06	.53

## DISCUSSION

The results from this study indicated that the eight subjects demonstrated a wide range of stammering difficulties, attitudes, and behavioural intentions. They showed fluency gains averaging 19% and an accompanying average increase of 25 words per minute following the eight week programme of group therapy. In addition, there were notable normalizations in the subjects's "communication attitudes", as assessed by the Erickson S24 scale.

### The Model

It may be recalled that the Fishbein and Ajzen model (1975) of attitudes, intentions and behaviours proposed earlier conceptualizes behaviour as a function of intention to behave and intention as a function of attitude. Thus, evidence of a high correlation between attitude and intention and between intention and behaviour and a somewhat lower correlation between attitude and behaviour would support the framework of this model for stammering behaviour.

An analysis of the stability coefficients generally showed good correlations between attitude and intention to use own speech ( $r=.74$ , pre test;  $r=.91$ , post test), and attitude and intention to use technique speech ( $r=.72$  pre test, and  $r=.32$ , post test). The poorer correlation which was found between attitude to and intention to use technique speech in the post test, however, may be a reflection of

the group member's realization of the degree of mental effort required to carry out speaking in technique after years of unmonitored speech. Having completed a programme of therapy which instructed them primarily in the monitoring and evaluation of those features implicit in a specific speech technique, the subjects were much more aware of the amount of mental control involved in the implementation of this speech and, therefore, more realistic in their intentions to use it.

When examining behavioural correlates in relation to the proposed model, one would anticipate attitude and intention to use own speech to correlate negatively with the measures of increase in fluent behaviour and attitude and intention to use technique to correlate positively with such fluency gains. Also, as previously mentioned, intention should correlate more strongly with behaviour than attitude. The measures of attitude to and intention to use own speech in the pre tests ( $r = -.46$  and  $r = -.38$ , respectively) and in the post tests ( $r = -.50$  and  $r = -.44$ , respectively) all correlate negatively with fluency measures and, therefore, support the model. The relationship between attitude, intention and behaviour was also arranged in the manner predicted by the model, with attitude more negatively correlated with fluency than intention in both the pre and post tests. The measures of attitude to and intention to use technique speech at both the pre and post test times also lend support to the model. Positive correlations with fluent behaviour were obtained, with intention more positively correlated (pre test  $r = .76$ ; post test  $r = .65$ ) than attitude (pre test  $r = .56$ ; post test  $r = .56$ ) in all cases. Thus, the present

study appears to lend a good deal of support to the conceptual framework of Fishbein and Ajzen.

However, the model proposed does extend the relationships outlined above, such that behavioural intentions can be predicted from attitude components and also that observable behaviours can be determined from intentions. The results of this study should, therefore, be viewed in terms of the predictive value of the model; and a critical appraisal can be made from the results obtained regarding the prediction of fluent speech behaviour from behavioural intentions. Despite the small number of subjects, the multiple regression analysis indicated that intention to use technique (measured at the pre test) to be the best predictor of fluency gain. Attitude to technique speech pre test was found to have the second highest correlation, albeit at a low level of significance.

The model would attribute attitude with some predictive value, although not as high in value as behavioural intention. In predicting fluency gains, attitude to technique speech had an  $r$  value of .56 and intention to use technique a value of .76.

Further detailed analysis of the relationships between attitude, intention and fluency proved to be noteworthy. When the subjects were divided into those with high and low attitudes or intentions at the pre test, a definite pattern emerged. Stammerers with low attitudes and intentions to use their own speech and those with high attitudes and intentions to use technique speech showed considerably greater fluency gains, 43% and 25% respectively, than those subjects with high attitudes and intentions to use their own speech and those with

low attitudes and intentions to use technique speech. Thus, the stammerer who presents him or herself for therapy with a positive predispositional state or attitude to fluent speech and high intentions to use a fluent speech technique and/or a negative view of his or her own speech and a desire not to use a disfluent pattern will show more improvement in therapy than a stammerer without these dispositions.

In the light of these present findings the various hypotheses that were put forward in the earlier chapter regarding those stammerers who fail to achieve the optimum fluency gains may be extended. A stammerer who would show reduced acquisition of fluency with accompanying difficulties with transfer and maintenance would typically have a high regard for his or her own speech and high intentions to use it and/or low attitude to the fluency technique to be taught in therapy and poor intentions to use it prior to enrollment in speech therapy. Such an occurrence should alert the clinician to the possibility of the client experiencing difficulties in therapy.

Such a significant relationship between pre therapy measures of attitude and intention and post therapy fluency gains would point to the value a standardized assessment of these variables would have for the practising speech pathologist. They would provide him/her with a predictor of the possible outcome of therapy for any one particular client.

### "Communication Attitudes" (S24)

While showing a reasonable degree of reliability in the pre test and post test scores ( $r=.79$ ), there was a notably low correlation between either of the Erickson scores and fluency gains. When subjects were categorized into those with high and low attitudes and intentions to use their own speech and to use the technique, the Erickson scores did not follow the form predicted by the Fishbein model. Only in the case of one of the variables, intention to use technique speech, were the results in the direction hypothesized, with greater reduction, 41% in Erickson scores shown by these subjects with high intention as opposed to 27% reduction shown by those with low intention to use the technique. Thus, the data from the study indicates that the Erickson scores cannot be interpreted as having a predictive function and, indeed, do not purport to have such a function. As Andrew and Culter (1974) comment, the S24 is designed primarily "to identify covert communication attitudes" and, therefore, it acts purely as an assessment of attitude and attitude change. The intention scale when used to describe intention toward using the technique implemented in the therapy programme, appears to have a much greater predictive value, namely  $r=.76$ .

### Therapy

A few comments should be made in relation to the relatively new therapy programme implemented in this study. The mean percentage fluency



gain achieved by the group, 19%, would indicate that it is an effective programme, to which the group responded well. The regime has several advantages, notably the group interaction and the general structured approach, both of which the subjects felt were of great benefit. Of the innovative aspects of the programme, the use of self instruction and self consequence proved somewhat more problematic. Some subjects did not respond well to the motoric signal that was employed with the self instruction and felt it drew attention to their behaviour during transfer activities. Modifications to reduce this effect were made by reducing the magnitude of the signal; and these met with varying degrees of success. Self consequence, while seeming to be an effective reinforcer, encountered practical difficulties in spontaneous speech activities. It proved difficult to self consequence for the required percentage of the utterance (i.e. 20%) when the client was usually unaware of the length of his total utterance until it had actually been completed. The features of self monitoring and self evaluation appeared to be successful in giving the clients a feeling of responsibility for their speech and an additional feeling of control.

#### Implications for Further Research

While the results of the study appear to indicate the advantages of the Fishbein and Ajzen model, it is recognised that there is a need to further refine the assessment used in this study. Specifically, validation studies are required for both the attitude and intention

scales; and additional reliability studies using larger groups of subjects are needed. There is also a need to generalize the results of the study, not only to subjects of differing ages and severity ranges, and of differing economic and educational status etc., but also to those involved in therapy programmes other than the Shames and Florence regime employed in this study. It would be of clinical significance if the model could be proved to be applicable to regimes involving the "stutter more fluently approach" and also those with no group interaction. Once these studies have been carried out, it is felt that the proposed model would have several advantages over the existing attitude scales and therapeutic implications for the practising clinician. Implementation of the scales used in this study would allow the therapist to predict a client's suitability for therapy and/or determine whether or not there was a need to integrate a programme of attitude change or modification into his or her therapeutic intervention. Arising out of such a programme of attitude change in therapy comes the necessity to determine what method of attitude change is most effective within a therapeutic regime, and further research would need to define this more closely.

### Summary and Conclusions

It was the purpose of this study to apply the Fishbein and Ajzen model of attitude, intention and behaviour to stammerers' evaluations and use of their own disfluent speech and a fluency controlling speech pattern. Subjects were eight adult stammerers who participated in an

eight week group therapy programme. The questions posed by the study related to the theoretical framework of the proposed model, which suggested a positive relationship between attitude and intention to behave and intention to behave and overt behaviour. The specific variables involved were attitude to and intention to use own speech and attitude to and intention to use technique speech.

The results of this investigation have lent support to the Fishbein and Ajzen model and also confirmed the additional value of the model in predicting fluency gains on the basis of pre-therapy attitude and intention scores. In this light the study answers the need recognised by Ryan (1979) for a measure of attitude which would have a "predictive function for determining the outcome of therapy."

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## APPENDICES



APPENDIX A  
CONTRACT

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APPENDIX A

CONTRACT

I have freely consented to take part in a scientific study and therapy programme being conducted in the Department of Audiology and Speech Sciences at Michigan State University

The study and programme have been explained to me and I understand the explanation that has been given.

I agree to attend all the evaluation and therapy sessions of the programme.

I understand that I am free to discontinue my participation in the study at any time.

I understand that any results will be treated in strict confidence and that I will remain anonymous. Within these restrictions, I understand that general results may be presented at professional meetings and may appear in appropriate professional journals and other publications.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

**APPENDIX B**  
**THERAPY AND TRANSFER OBJECTIVES**

APPENDIX B  
THERAPY OBJECTIVES

WEEK 1

1. Orientation
2. Introduction of technique at 60 syllables per minute
3. Parallel production of technique at 60s.p.m.
4. Reading using production of technique at 60s.p.m.
5. Producing automatic speech sequences at 60s.p.m.
6. Producing short phrases in answer to questions in technique  
at 60s.p.m.
7. Producing single sentences spontaneously in technique at 60s.p.m.
8. Producing several sentences spontaneously in technique at 60s.p.m.
9. Introduction of technique at 80s.p.m.
10. Parallel production of technique at 80s.p.m.

CRITERION FOR WEEK 1

Production of one three minute spontaneous speech sample at 60s.p.m.  
without disfluency in front of the group.

## THREAPY OBJECTIVES

### WEEK 2

1. Reading using technique at 80s.p.m.
2. Producing automatic speech sequences at 80s.p.m.
3. Producing short phrases in answer to questions at 80s.p.m.
4. Producing single sentences spontaneously at 80s.p.m.
5. Producing several sentences spontaneously at 80s.p.m.
6. Introudction of technique at 100s.p.m.
7. Parallel production of technique at 100s.p.m.
8. Reading using production at 100s.p.m.
9. Producing automatic speech sequences at 100s.p.m.
10. Producing short phrases in answer to questions in technique  
at 100s.p.m.
11. Producing single sentences spontaneously in technique at 100s.p.m.
12. Producing several sentences spontaneously in technique at 100s.p.m.

### CRITERION FOR WEEK 2

Production of one three minute spontaneous speech sample at 60s.p.m.  
and 100s.p.m. infront of the group without disfluency.

## THERAPY OBJECTIVES

WEEK 3

1. Brief revision of previous speeds and control technique
2. Introduction of technique at 130s.p.m.
3. Parallel production of technique at 130s.p.m.
4. Reading at 130s.p.m.
5. Producing automatic speech sequences at 130s.p.m.
6. Producing short phrases in answer to questions at 130s.p.m.
7. Producing single sentences spontaneously at 130s.p.m.
8. Producing several sentences spontaneously at 130s.p.m.
9. Introduction to technique at 150s.p.m.
10. Reading at 150s.p.m.
11. Producing automatic speech sequences at 150s.p.m.

CRITERION FOR WEEK 3

Production of one three minute sample of spontaneous speech at 130s.p.m. in front of the group without disfluency. Demonstration of ability to change range of production of speech in technique voluntarily at 60, 80, and 130s.p.m.

## THERAPY OBJECTIVES

WEEK 4

1. Producing short phrases in answer to questions to technique at 150s.p.m.
2. Producing single sentences spontaneously at 150s.p.m.
3. Producing several sentences spontaneously at 150s.p.m.
4. Discussion of attitudes related to fluency
5. Outline of phrase II of therapy
6. Review of volitional control of technique
7. Development of client's ability to use self instruction-client signals and monitors. Clinician evaluates and consequences
8. Development of client's ability to self monitor and evaluate-client signals, monitors and evaluates. Clinician consequences
9. Development of client's ability to self consequence-clinician signals a self reinforcement paradigm
10. Further development of client's ability to self consequence-client controls self reinforcement paradigm

CRITERION FOR WEEK 4

Production of one three minute sample of spontaneous speech at 150s.p.m. in front of the group. Demonstration of self monitoring, self evaluation and self consequence over a 5 minute period.



## TRANSFER OBJECTIVES

### WEEKS 5-8

1. Develop transfer contract for each client
2. Develop hierarchy of situations in which transfer to be attained.

### CRITERION

Subject signals speech behaviour to be used and achieves 80% monitored and 20% unmonitored speech

3. Within the clinic, vary audience, speaking situation and introduce stress factors

### CRITERION

Subject signals and achieves 80% monitored and 20% unmonitored speech

4. Environmental transfer; the number of situations in which transfer of fluency takes place increases in number and duration

### CRITERION

Subject signals and achieves 80% monitored and 20% unmonitored speech

5. Environmental transfer; subject monitors in blocks of time

### CRITERION

Subject signals and achieves 80% monitored and 20% unmonitored speech

**APPENDIX C**  
**STUTTERING SEVERITY INSTRUMENT**

# APPENDIX C STUTTERING SEVERITY INSTRUMENT

## Stuttering Severity Instrument

Glyndon D. Riley

Frequency (Use A or B, not both)

A. For readers. Use 1 and 2.				B. For nonreaders	
1. Job Task		2. Reading Task		Picture Task	
Percentage	Task Score	Percentage	Task Score	Percentage	Task Score
1	2	1	2	1	4
2-3	3	2-3	3	2-5	6
4	4	4-5	5	6	8
5-6	5	6-8	6	5-6	10
7-9	6	10-16	7	7-9	12
10-14	7	17-25	8	10-14	14
15-20	8	27 and up	9	15-20	16
20 and up	9			20 and up	18

Total  
Frequency  
Score  
A 1 & 2  
or  
B

Duration

Estimated Length of Three Longest Blocks	Task Score
Fleeting	1
One half second	2
One full second	3
2 to 9 seconds	4
10 to 30 seconds (by second hand)	5
30 to 60 seconds	6
More than 60 seconds	7

Total Duration  
Score

Physical Concomitants

Evaluating Scale: 0 = none; 1 = not noticeable unless looking for it; 2 = barely noticeable to casual observer; 3 = distracting; 4 = very distracting; 5 = severe and painful looking.

1. Distracting sounds. Noisy breathing, whistling, smiling, blowing, clicking sounds..... 0 1 2 3 4 5
2. Facial grimaces. Jaw jolting, tongue protruding, lip pressing, jaw muscles tense..... 0 1 2 3 4 5
3. Head movement. Back, forward, turning away, poor eye contact, constant looking around..... 0 1 2 3 4 5
4. Extremities movement. Arm and hand movement, hands about face, torso movement, leg movements, foot tapping or swinging..... 0 1 2 3 4 5

Total Physical  
Concomitant  
Score

TABLE 1. Percentile and severity equivalents of SSI raw scores (N = 109).

Total Score	Percentile	Severity
0-5	0-4	Very Mild
6-9	5-11	Mild
10-13	12-23	
14-18	24-40	
19-23	41-60	Moderate
24-27	61-77	
28-30	78-89	Severe
31-45	90-96	
	97-100	Very Severe

Total Overall Score

Name \_\_\_\_\_

Age \_\_\_\_\_ Sex \_\_\_\_\_

Date \_\_\_\_\_

Examined By \_\_\_\_\_

## APPENDIX D

S24

## APPENDIX D

S24

**S24**

Answer the following questions by writing true (T)  
or false (F) within the parenthesis:

- ( ) I usually feel that I am making a favorable impression when I talk.
- ( ) I find it easy to talk with almost anyone.
- ( ) I find it easy to look at my audience while speaking to a group.
- ( ) A person who is my teacher or my boss is hard to talk to.
- ( ) Even the idea of giving a talk in public makes me afraid.
- ( ) Some words are harder than others for me to say.
- ( ) I forget all about myself shortly after I begin to give a speech.
- ( ) I am a good mixer.
- ( ) People sometimes seem uncomfortable when I am talking to them.
- ( ) I dislike introducing one person to another.
- ( ) I often ask questions in group discussions.
- ( ) I find it easy to keep control of my voice when speaking.
- ( ) I do not mind speaking before a group.
- ( ) I do not talk well enough to do the kind of work I'd really like to do.
- ( ) My speaking voice is rather pleasant and easy to listen to.
- ( ) I am sometimes embarrassed by the way I talk.
- ( ) I face most speaking situations with complete confidence.
- ( ) There are few people I can talk with easily.
- ( ) I talk better than I write.
- ( ) I often feel nervous while talking.
- ( ) I find it hard to make talk when I meet new people.
- ( ) I feel pretty confident about my speaking ability.
- ( ) I wish that I could say things as clearly as others do.
- ( ) Even though I knew the right answer I have often failed to give it because I was afraid to speak out.

**APPENDIX E**  
**ATTITUDE RATING SCALE AND QUESTIONNAIRE**

# APPENDIX E

## ATTITUDE RATING SCALE AND QUESTIONNAIRE

After listening to the sample of speech on tape A, look at the scale drawn below:

1	2	3	4	5
I would VERY MUCH DISLIKE speaking in that technique when...	I would DISLIKE speaking in that technique when...	I would NEITHER DISLIKE NOR LIKE speak- ing in that technique when...	I would LIKE speaking in that technique when...	I would VERY MUCH LIKE speaking in that technique when...

Think of one situation, real or imagined, in which you would VERY MUCH DISLIKE speaking in the technique demonstrated on the tape. Briefly write down the situation under point 1 on the scale.

Think of one situation, real or imagined, in which you would VERY MUCH LIKE speaking in the technique demonstrated on the tape. Briefly write down the situation under point 5 on the scale.

Think of one situation, real or imagined, in which you would NEITHER DISLIKE NOR LIKE speaking in the technique demonstrated on the tape. Briefly write down the situation under point 3 on the scale.

Think of one situation, real or imagined, in which you would DISLIKE speaking in the technique demonstrated on the tape. Briefly write down the situation under point 2 on the scale.

Think of one situation, real or imagined, in which you would LIKE speaking in the technique demonstrated on the tape. Briefly write down the situation under point 4 on the scale.

## ATTITUDE RATING SCALE AND QUESTIONNAIRE

Listed below are a number of situations of varying difficulty.

Rate each of the situations 1, 2, 3, 4 or 5 using the scale you have just devised.

For example, if you would very much dislike speaking in the technique of speech used on the tape when "talking with a close friend" then you should place a number 1 on the left of that situation on the list.

Please make sure you rate all the items on the list.

RATINGSITUATION

- talking with a young child
- arguing with your parents
- reading something previously prepared to a group of strangers
- talking on the telephone to an acquaintance
- saying "hello" or "hi" to a friend
- talking to an animal
- talking to someone over whom you have authority
- being rushed when speaking to a friend
- swearing or cursing
- apologizing to an acquaintance
- telling a joke to friends
- introducing yourself to someone you have met for the first time
- talking with friends and acquaintances at a dinner party
- refuting a friend's criticism
- saying the "Pledge of Allegiance"
- talking to your boss or employer while at work
- talking when happy with friends
- being asked to repeat an order in a restaurant or bar
- talking to an acquaintance on a topic about which you are very well informed
- talking to yourself when alone
- counting 1 to 20
- talking to an acquaintance after he/she has teased you about your speech
- recounting a personal experience to a friend
- using a sound/word that has been troublesome in the past with a stranger
- requesting information from a stranger
- being alone with a member of the opposite sex
- trying to get across your own point of view in a group discussion
- answering questions from an acquaintance about your speech
- visiting a friend who is ill
- being misunderstood by a stranger



**APPENDIX F**  
**INTENTION TO BEHAVE**  
**RATING SCALE AND QUESTIONNAIRE**

## APPENDIX F

INTENTION TO BEHAVE  
RATING SCALE AND QUESTIONNAIRE

After listening to the sample of speech on tape 1, look at the scale drawn below:

1	2	3	4	5
I would NEVER use that technique of speech when...	I would SELDOM use that technique of speech when...	I would OCCASIONALLY use that technique of speech when...	I would FREQUENTLY use that technique of speech when...	I would ALWAYS use that technique of speech when...

Think of one situation, real or imagined, in which you would NEVER use the technique of speech demonstrated on the tape.  
Briefly write down the situation under point 1 on the scale.

Think of one situation, real or imagined, in which you would ALWAYS use the technique of speech demonstrated on the tape.  
Briefly write down the situation under point 5 on the scale.

Think of one situation, real or imagined, in which you would OCCASIONALLY use the technique of speech demonstrated on the tape.  
Briefly write down the situation under point 3 on the scale.

Think of one situation, real or imagined, in which you would SELDOM use the technique of speech demonstrated on the tape.  
Briefly write down the situation under point 2 on the scale.

Think of one situation, real or imagined, in which you would FREQUENTLY use the technique of speech demonstrated on the tape.  
Briefly write down the situation under point 4 on the scale.

# INTENTION TO BEHAVE RATING SCALE AND QUESTIONNAIRE

Listed below are a number of situations of varying difficulty.

Rate each of the situations 1, 2, 3, 4 or 5 using the scale you have just devised.

For example, if you would never use the technique of speech demonstrated on the tape when "talking with a close friend" then you should place a number 1 on the left of that situation on the list.

Please make sure you rate all the items on the list.

## RATING

## SITUATION

- talking with a young child
- arguing with your parents
- reading something previously prepared to a group of strangers
- talking on the telephone to an acquaintance
- saying "hello" or "hi" to a friend
- talking to an animal
- talking to someone over whom you have authority
- being rushed when speaking to a friend
- swearing or cursing
- apologizing to an acquaintance
- telling a joke to friends
- introducing yourself to someone you have met for the first time
- talking with friends and acquaintances at a dinner party
- refuting a friend's criticism
- saying the "Pledge of Allegiance"
- talking to your boss or employer while at work
- talking when happy with friends
- being asked to repeat an order in a restaurant or bar
- talking to an acquaintance on a topic about which you are very well informed
- talking to yourself when alone
- counting 1 to 20
- talking to an acquaintance after he/she has teased you about your speech
- recounting a personal experience to a friend
- using a sound/word that has been troublesome in the past with a stranger
- requesting information from a stranger
- being alone with a member of the opposite sex
- trying to get across your own point of view in a group discussion
- answering questions from an acquaintance about your speech
- visiting a friend who is ill
- being misunderstood by a stranger

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