EFFECT OF RESPONSE CONTINGENT NEGATIVE STIMULATION ON SELECTED RESPONSES IN A MOMENT OF STUTTERING

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Introduction

In recent years one can witness the increasing use of learning constructs and principles in the understanding and treatment of speech disorders. The problem of stuttering comes to the forefront of one's attention in this respect The first comprehensive book on stuttering with the behavioral-learning Orientation was written by Brutten and Shoemaker (1967). After critically examining the existing theories of stuttering which use learning constructs and principles (Sheehan, 1958; Wischner, 1950; Shames and Sherick, 1963), Brutten and Shoemaker (1967), present the two factor-theory of stuttering. Thus one of the criticisms levelled by them against these theoretical positions is that they cannot explain punishment data related to stuttering satisfactorily. They point out that these theoretical positions generate the prediction that under punishing conditions the frequency of stuttering will decrease in accordance with the law of effect. The data they present leads them to the conclusion that it is possibly true with regard to certain responses in a moment of stuttering (tongue protrusion, foot tapping etc.) and not with others (repetitions and prolongation of sounds and syllables). The latter responses increase in frequency when punished (Martin, et al. 1964).

Considerations such as these and the data relating to the conditions and nature of fluency disruption in normal speaker (Hill, 1954; Savoye, 1959) lead them to the hypothesis that stuttering is an involuntary disruption of fluency characterized by repetitions and prolongation of sounds and syllable caused by conditioned negative emotion. They also maintain that behaviors traditionally considered stuttering—like foot tapping, tight eye and lip closure, disturbances in breathing etc.—are instrumentally learned escape or avoidance behavior (adjustive behavior). This position leads to the logical consequence that under negative stimulation condition or response contingent negative stimulation condition (punishment) repetitions and prolongations of sounds and syllables increase in frequency because of increased negative emotion. Also contingently negatively stimulated adjustive responses will decrease according to the law of effect.

Siegel (1970) has critically examined data relating to stuttering and punishment, normal non-fluency and punishment and concludes that the existing data do not sum up in favor of Brutten and Shoemaker's position (1967). He cites series of studies

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(Martin and Siegel 1966a, 1966b, 1969, Siegel and Martin, 1965a; 1965b; 1966; 1967) in favour of the interpretation that stuttering is an instrumentally conditioned behavior.

The existing confusion relating to data and consequent differences in theoretical statements regarding the effect of punishment on stuttering is a compound of several factors. The most important factor seems to be the paucity of data-almost all studies have used very few subjects—which do not permit one to assume definite theoretical postures. The other factors are definition of stuttering and related factor of narrow versus molar specification of the behavior contingently stimulated (Brutten and Shoemaker, 1970, definition of Punishment (Siegel, 1970; Brutten and Shoemaker. 1970). Thus, the foregoing statements make it clear that there is very little "hard data" and more research needs to be done. The non-uniform data relating to shock and stuttering may be in part also due to stuttering being a general term designating different types of dysfluencies having different origins, maintained probably along different lines and amenable only to particular lines of treatment. In this Vien Brutten and Shoemaker (1967) recognize dysfluents with anxiety and without anxiety. The former they consider stutterers the latter 'adient' dysfluents.

Definitions

1. *Stuttering:* There is no one acceptable definition of stuttering. For the present purpose definition emphasizing the observable behavioral features will suffice. It can be described as dysfluency characterized primarily by repetitions and prolongations of sounds and syllables which may be accompanied by silent pauses, interjections, tight lip closures and many other behavior. Characterization of repetitions and prolongations of sounds and syllables as primary or universal feature is in accordance with the standard definition of stuttering given by Wingate (1964). This definition is not theoretically biased.

2. *Punishment*: Punishment can be defined as a condition wherein a stimulus contingent on a response decreases the probability of that response. The stimulus is called a punisher. It is obvious punishment cannot be defined with some measure of circularity. Thus in order to classify a stimulus as a punisher, one must first show that the stimulus is capable of decreasing the probability of the response upon which it is contingent. Complete circularity is escaped in that a stimulus situation which displays the property under one set of circumstances often, can serve as a punisher under different canditions. Thus, in the present study shock is being used as it is a known punisher.

Purpose

I. *Shock and stuttering*

To determine the effect of response contingent shock on selected responses in a moment of stuttering.

II. *PGSR and stuttering*

1. To investigate differences in PGSR variation pattern i.e. amount and/or nature of variation of skin resistance over time in reading and speaking conditions as compared to silent relaxed condition between (i) normal speakers and stutterers, and (ii) among stutterers.

2. To investigate possible relationship between PGSR variation pattern and experimental data.

Method

The above objectives are intended to be achieved in the following manner :

Initially PGSR variation pattern against time will be obtained for ten normal speakers randomly chosen from male student population in the All India Institute of Speech and Hearing. The PGSR variation pattern will be obtained under the following conditions :

Condition I: It is a condition where the subject is instructed to sit relaxed with his eyes closed for 5 minutes.

Condition II: Immediately follows condition I. In this condition the subject reads a chosen English or Kannada passage for 5 minutes.

Condition II is immediately followed by condition I.

Condition III: Immediately follows condition I. In this condition the subject speaks spontaneously for 5 minutes. To aid continuous production of speech the subject will be provided with cards suggesting topics of current interest.

In all the recording will take 20 minutes. The various resistance value indicated by the needle throughout the session will be plotted against the time axis. Three such sessions will be held each separated by the other by a period of 10 minutes. Same passage will be given for reading in all the three sessions. The subject will be asked to talk spontaneously using the same cards in the succeeding two sessions as was used in the first session.

Selection of Responses: It is intended to select two responses one each from the two classes of responses as distinguished by Brutten and Shoemaker (1967). The classes are (1) Repetitions and Prolongations of sounds and syllables and (2) other behaviour like eyeblink, tight lip closure. Such a criterion for selection will serve the purpose of relating the experimental data to their theoretical position.

Base Line Sessions: Base line sessions are of 30 minute duration. The frequency of a response will be tallied against each minute in stuttering data sheet by the observers, as the stutterers read.

Observer's Training: Two observers will be used for recording the occurrence of the chosen responses. Each observer will keep record of the frequency of one of the two chosen responses both in the base-line session and the experimental session. The experimenter and the observer will practice for a few sessions to obtain high

degree of inter-observer reliability in observing the specified response. These practices sharpen observers focus of attention on the specified responses.

Procedure for determining the intensity of shock to be used with individual cases

The subject is told that he will be given sample shocks of 1 second duration each at various voltage levels starting from '0' volts. He is instructed to signal when the shock is "detectable", "intolerable" and "most intolerable". The three readings are recorded for each subject.

Design of Experiment

The experimental sessions will be divided into three time segments.

1. Ten minutes of base-line segment when no shock is delivered. The observer will be recording the occurrence of responses assigned to them.

2. Ten minutes experimental segment when the independent variable shock is introduced contingent on one of the responses. The electro-aversion therapy unit has provision for recording number of shocks delivered, which is equivalent to frequency of the contingently stimulated response in the segment. The other response's frequency will be recorded too even though it is not contingently stimulated.

3. Ten minutes of extinction segment when the independent variable is withheld. The basic datum is the rate of responding (dependent variable) of the chosen responses Significance difference between rate of responding in the experimental segment and basve-line sessions, experimental segments and base-line segment gives the amount and direction of change in the dependent variable of both the responses produced by the Independent Variable.

It is intended to carry out such four experimental sessions with each stutterer. The chosen responses will be contingently stimulated at two levels : (1) Intolerable voltage of shock, (2) Most intolerable voltage of shock. The experimental session for one response will be followed by the other. The responses will be shocked first with the "Intolerable Voltage" then with the "tolerable voltage".

Conclusion

In this paper a brief plan to study the effect of contingent negative stimulation of chosen responses in the stuttering behaviour was outlined. Lack of sufficient "hard data"relating to punishment and stuttering was assumed to give justification for such a study. The Potential possibilities of PGSR instrument as a diagnostic instrument in relation to stuttering has been planned to be explored.

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