

THE IMPACT OF VOLITION ON THE RELATIVE VALUES OF REINFORCERS IN OPERANT CONDITIONS OF A FLUENCY PERIOD AND A STUTTERING RESPONSE †

G. PURUSHOTHAMA*

The impact of volition was measured operationally using changing values of reinforcers on both fluency and stuttering. The ABA paradigm was used in testing five subjects for this purpose. With reinforcement, it was seen, only fluency increased and not the stuttering response—repetition. The influence of volition in learning is discussed.

It has been shown that the stuttering is an operant and that it is a learnt behaviour. It is possible that it is reinforced by the subjects own feedback on an aperiodical schedule which is highly resistant to extinction. This concept has been supported by many experimental and therapeutic studies. (Flanagan et al 1958, Martin and Siegel 1966 a, 1966 b, Quiest and Martin 1967, Heroldson, Martin and Star 1968, Gross, 1958, Webster and Dorman 1970, Viswanath, 1972, Dattatreya, 1975, Beatie 1973, Richard and Brocas 1973, Bharath Raj 1974). However, the conditioning techniques used in the treatment of stuttering have not given satisfactory results. The principles of these techniques are borrowed from animal experiments which were of relative ease compared to the experiments on human beings. It is thought that volition is also a variable which has been neglected in the studies of conditioning the stuttering response. Thus, the equivocal results in the conditioning experiments may be attributed to the subjects' Volition. It is stated that motive set leads the individual to be especially alert to relevant stimuli. Many concepts such as drive, set, and Volition have not been given due consideration as they pose problem of quantification.

In this study an attempt was made to find the impact of Volition in a conditioning situation. Here, Volition was considered as willingness or unwillingness of a subject to learn a given act. Volition could be implicit. The Volitional sets can be induced by instructions. (Ekman et al 1963, Rathna and Rangasayee 1975).

T Based on the thesis submitted to University of Mysore, 1976.

* AIISH, Mysore-6

Lazarus (1963) in providing the results of Behaviour therapy has stated that for stuttering it has yielded least satisfactory results. Eysenck & Rachman (1965) say that "stuttering and conductive disorders have not responded well to the present techniques and it needs to be investigated a great deal. They call it a 'disorder of second kind' where the symptom is socially disapproved, and in which the conditioned stimulus evokes sympathetic (Physiologically parasympathetic and hedonistically positive) reactions. In accounting for the relapse of such disorders they say that these symptoms are less painful to bear as far as the individual is concerned, indeed they may appear quite pleasant and agreeable to him. It is the society which provides motivation for therapy, and this imposed drive is likely to be much weaker. This is important because the strength of the conditioned response is very much determined by the strength of the drive under which the individual is working.

Problem : The problem of the study was to test the impact of Volition on the relative values of reinforcers in the operant conditioning of a stuttering response and of fluency periods. This was attempted by changing the values of reinforcement.

Purpose: The purpose of the study was to control both dimensions of Volition. For this the values of reinforcement were changed accordingly. The following hypotheses were forwarded.

- (i) There will not be a significantly greater increase in fluency periods than Stuttering responses with increase in values of reinforcers.
- (ii) There will not be a greater increase in fluency periods than stuttering responses when both are reinforced with equal values of reinforcement.

Review of Literature:

Stuttering has behaved very differently in different conditioning experiments. Since Flanagan, Goldiamond and Azrin (1958-59) produced stuttering in normally fluent subjects and relative fluency in stutterers, there are many studies which suggests that stuttering is an operant response.

Stuttering has shown a decrease when contingently punished by application of various stimuli like verbal stimuli ; electric shock and even time-out and response cost have been used as punishing stimuli (Martin and Siegel, 1966a, 1966b, Haroldson et al 1968, Viswanath, 1972, Dattatreya, 1973, Bharath Raj, 1974). But in the same situation when punished with electric shock or the threat of electric shock or verbal stimuli stuttering has not decreased but in many cases increased (Van Riper, 1937, Frick, 1957, Fredrick 1955 ; Daly 1964 and Timmons 1966). In Hegde's study (1971) contingently applied shock increased stuttering and moreover,

the subjects reported that it evoked anxiety. (Brutten and Shoemaker 1971) pointed out that a majority of published reports of speech therapists indicate that punishment of stuttering leads to an increase rather than decrease in stuttering.

Subjective variables in a conditioning situation are also of considerable importance. It is evident that subjective factors can influence conditioning even physiologically (Cook and Harris, 1937 and Bridger & Mandel 1965). Human subject is able to decide whether to get or not to get conditioned especially when self control involves mainly self reinforcement. It is found that self reinforcement increases resistance to extinction. Stuttering can be reinforcing as a subject seeking recognition and attention can effectively hold listeners attention (Robinson, 1964). According to Van Riper (1971), stutterer, in techniques like cancellation wherein he surrenders defense and disguise reactions which are a part of symptom, gets curious and interested in them and later alters his sets to make subsequent modification of symptoms.

There are studies which suggest that the kind of change in response need not be in consonance with the type of contingency. The kind of change of response can be thought to be influenced by the kind of volition the subject has which can be possibly introduced by instructions also. In many studies the instructions have brought a considerable amount of dissonant type of response to the contingency applied mostly because of the change of subjects volition induced by instructions (Wallach and Henle 1941, Ekman et al 1963, Rathna and Rangasayee, 1975).

Subjective volition can be the answer to the paradoxes seen in the literature like (1) stuttering increased in certain subjects and decreased in some when punished (2) apparently different contingent stimuli have shown to bring the same results, and (3) induced set and intention bring a large difference.

Methodology :

Five male stutterers (age range 13 to 22 ½ yrs.) were chosen as subjects for the study. Fluency was considered as the response (R_1) to be reinforced. A mode period of fluency in the repertoire was taken as a unit of response. Repetition was taken as the stuttering response (R_2) to be reinforced in all subjects. A hundred percent contingent token reinforcement was employed. Money was chosen to be the reinforcer. The token for response R_1 was a buzzer sound and for response R_2 was a red light.

The single case study model ABA design was used which permitted the control and experimental data to be obtained from the same subject. There were atleast three base rates taken for each subject. Each subject underwent five

experimental sessions of 30 minutes each. The order of presentation of experimental sessions were changed among the cases to check order effects. As the relative values of the reinforcement was to be tested for the impact of volition, the values of tokens were either increasing or decreasing in each session.

The data was analyzed using non-parametric statistics. A distribution free test was used to find differences between treatments for both responses and Wilcoxon matched pairs signed rank test was used to test the significance of changes in responses across treatment conditions and among subjects.

Discussion and conclusion :

The increases in responses were not in consonance with values of reinforcement. Generally fluency tended to increase though not in accordance with the increasing values of tokens. In any condition the increment of fluency was relatively high.

Repetitions changed comparatively less. Generally there were no increases but decreases were observed. Surprisingly even with increasing values of token, repetitions changed little.

Fluency being a desirable response, the subjects had positive volition towards it. Eventhough there was no awareness of contingency among subjects for this response the maximum change is seen only in this response. On the other hand repetitions being a nondesirable behaviour have not increased even with reinforcement but have decreased. Two elderly subjects even reported the awareness of the contingency for repetitions. But they did not show an increase in the repetition scores. This could be because of negative volition they had towards the behaviour.

The above findings allowed the first null hypotheses " there will not be a significantly greater increase in fluency periods than in stuttering responses with increase in values of reinforcers " got rejected. The next hypothesis " there will not be a greater increase in fluency periods than the stuttering responses when both are reinforced with equal values of reinforcement " is nearly rejected as out of five in two conditions there was a significant increase of fluencies and in others the increase didn't achieve the statistical significance.

Subjects did not gain relatively more from stuttering as the gain from being fluent has already a premium over that being a desirable behaviour. So volition could have this role of either enhancing or inhibiting conditioning. There seems to be a definite impact of Volition in the conditioning situation. The desirable behaviour is easily conditionable but the undesirable behaviour decreases even if reinforced positively.

Implications :

In experiments with human beings as subjects, the variable Volition should be considered too. This points out a weak point in the conventional behaviour therapies. Clinically it will be useful to highlight the importance of Volition in subjects under treatment. Subjects can be tested for prognosis using a similar methodology.

REFERENCES

- Beatie, M. S. (1973) A Behaviour Therapy programme for stuttering. British JDs comm. Vol. 8. p. 120.
- Bharath Raj, J., (1974) Control of stuttering behaviour through response contingent shocks, J. All India Institute of Speech and Hearing. Vol. 6. p. 10.
- Bridger, W., and Mandel, J. (1965)—Abolition of PRE by Instructions in GSR conditioning, J. Exp. Psychol. Vol. 69 p, 476, in Rachman & Teasdale, 1969.
- Brutten, G. T., and Shoemaker, D. J., (1971) A two factor learning theory of stuttering in Travis 1971.
- Cook & Harris, P. E., (1937)—The verbal conditioning of the GSR. J. Exp. Psychol, Vol. 21. p. 202 quoted by Rachman and Teasdale 1969.
- Daly, D., (1964) Rate of stuttering adaptation under two different electroshock conditions. Unpublished master's thesis Ohio University, quoted in Travis 1971.
- Dattatreya, T., (1973) The effect of continuous contingent, 'Random contingent and random negative stimulation on selected responses in a moment of stuttering. Master's Thesis University of Mysore.
- Ekman et al (1963) Interaction of set and awareness as determinants to verbal conditioning. J. Abn Soc Psychol. Vol. 66, p. 387.
- Eysenck, H. J., and Rachman, S. (1965) The causes and cures of neurosis. Routledge & Kegan Paul., London.
- Flanagan et al (1958) Operant stuttering ; The control of stuttering behaviour through response contingent consequences, J. Exp An Behv. p. 173 (1959) Instalment of stuttering in normally fluent individuals through operant procedures Science 1959 Vol. 130, p. 979 in Ullman and Krasner 1962.
- Fredrick, C. (1955) an investigation of learning theory and reinforcement as related to stuttering behaviour—unpublished doctoral dissertation, University of California, Los Angeles, quoted in Travis, 1971.

- Frick J. A., (1957) An exploratory study of effect of punishment upon stuttering ; Ph. D., dissertation State Univ. IOWA quoted by Brutten and Shoemaker, 1971.
- Gross, M. S., (1968) The effect of punishment and reinforcement on the disfluencies of stutterers, convention address ASHA quoted in Behv. Res. The Vol. 11, 1973 p. 43.
- Haroldson, S. R., Martin RR & Starr, C. D., (1968) Timeout as a punishment for stuttering. J Speech Hearing Res. Vol. 11, p. 560.
- Hegde, M. N. (1971) The effect of shock on stuttering—J. All India Institute of Speech and Hearing Vol. 2, p. 104.
- Lazarus, A., (1963) The results of behaviour therapy in 126 cases of severe neurosis—Behav. Res. Ther. Vol. 1, p. 65.
- Martin & Siegel (1966a) The effects of response contingent shock on stuttering, J. Speech Hearing Res. Vol. 9, p. 340.
- Martin & Siegel (1966b) "The effects of simultaneously punishing stuttering and rewarding fluency—J. Speech Hearing Res. Vol. 9, p. 466.
- Quiest, R. W., and Martin, R. R. (1967)—The effects of response contingent punishment on stuttering JSHR Vol. 10. p. 795.
- Rathna, N. and Rangasayee, R. (1975) The Role of Volition in Human conditioning—J. AIISH, Vol. 6. p. 67.
- Richard, L. S., & Brocas, V. S. (1973) The affect of contingent stimuli on stuttering, in proceeding of 81st Annual Convention of the APA Montreal Abstracted in Psy. Abstracts Vol. 50 No. 7398.
- Robinson, F. B., (1964) Introduction to stuttering : Prentice Hall Inc. Englewood Cliffs.
- Timmons, R. J. C. (1966) In Van Riper 1971 Cit.
- Van Riper, C, (1937) The affect of penalty upon the frequency of stuttering spasm—J. Genel, Psycho. Vol. 50. p. 193, quoted in Travis, 1971.
- Vaa Riper, C, (1971) symptomatic therapy for stuttering in Travis 1971.
- Viswanath, N. S., (1972) The affects of response contingent negative stimulation on selected responses in a moment of stg. Master's thesis, Univ. of Mysore.
- Wallach, H., and Henle, M, (1941) An experimental analysis of the law. J. Exp. Psy Voi. 28. p. 340 in Osgood (1953).
- Webster, R. L., and Dorman, M. E.. (1970) Decrease in stuttering frequency as a function of continuous and contingent forms of auditory masking. JSHR Vol. 13. p. 82.