VERBAL PARTICIPATION AS A FUNCTION OF THE PRESENCE OF PRIOR INFORMATION CONCERNING APTITUDE

By

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CONCERNING APTITUDE

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CHAPTER I

REVIEW OF THE LITERATURE AND PURPOSE OF STUDY

Review of the Literature

The principle that knowledge of results (KR) on some complex task may have a motivational influence on future performance in a related academic activity has been widely researched. Arps (1920) found that within the limits operative for his study "both the absolute amount of work and the rate of work done under conditions of knowledge of results exceed that done under conditions of ignorance of results". Book and Norvelle (1922) studying learning incentives noted that a group of subjects given knowledge of progress excelled a group given no knowledge of progress in each of the first ten practice periods, but lost this advantage abruptly when the knowledge of progress was withheld. Ross (1933), investigating the influence upon achievement of knowledge of progress, found that, of three groups given full information of progress, vague information and no information, respectfully, the group given full information of progress forged steadily ahead of the other two groups, while the group given no knowledge made the poorest showing of all. Ross concluded that a knowledge of the learner's own individual progress and that of the group of which he is a member "is sufficient to give him a distinct superiority over competitors, and the degree of superiority is soundly proportional to the amount of knowledge possessed". More recently, Ammons (1956) states that "knowledge of various

kinds which the performer receives about his performance affects his behavior".

Several studies have been done to demonstrate that interpersonal reinforcers may be utilized to condition a variety of verbal responses (Cohen, Kalish, Thurston, and Cohen, 1954; Greenspoon, 1955). Cohen, et al. investigated the role of reinforcement in verbal behavior and reported successive increments in the reinforcement response for the group of subjects which received reinforcement as opposed to no change in response for the group of subjects which received no reinforcement. In a study of the control of the content of conversation Verphanck (1955) carried on conversations with 24 subjects using a wide variety of topics and found that both individually and in groups every subject increased his rate of speaking opinions with reinforcement by paraphrase or agreement, and 21 subjects decreased in rate with non reinforcement. Crowne and Strickland (1961) have reported that subjects who had a high need for social approval gave significantly more plural noun responses when the investigator reinforced them with "Mm-mmm" than did the subjects with low need for social approval. Spielberger, et al. (1963) evaluated the effects of awareness and motivation to receive reinforcement for subjects in a study on verbal conditioning. Subjects were reinforced with "good" for constructing sentences beginning with "I" or "we". Reinforcement motivation was assessed by an intensive post conditioning interview. Those "Aware" subjects motivated to receive reinforcement gave more "I" and "we" sentences than unmotivated "Aware" subjects. More recently, Spielberger, et al. (1966) investigated a situation in which motivation to receive reinforcement was induced during conditioning in that subjects were instructed to say words and

were reinforced by the experimenter saying "Mm-mmm" for each human noun response. Later, subjects were told to make the experimenter say "Mm-mmm". Before this instruction only aware subjects showed percentage gains. The incentive inducing instruction influenced subjects that were aware of a correct contingency to give more human noun responses and served to induce both awareness and performance in some subjects. Also, DeNike (1965) required Ss in a verbal conditioning experiment to indicate their motivation to receive reinforcement and to make quantitative estimates of their trying for reinforcement and of E's giving reinforcement. The interview responses were fairly closely postdictive of mean actual performance gains and those subjects judged "Aware" of the reinforcement contingency showed a performance increase during the post-awareness period. The findings of these studies suggest that performance gains in verbal conditioning are mediated by cognitive processes, and that the reinforcement stimuli has both informative and incentive value.

Few researchers have distinguished between the information or cueing function of the KR and the motivational function. Locke (1967) hypothesizes that one possible means of isolating the motivational effects of KR is to give subjects knowledge that cannot be used for correcting errors on future tasks. The findings of Locke suggest that in order to predict the effect of KR on performance level it is necessary not only to know that the individual has such knowledge but that it is also necessary to know what he does with this knowledge, how he evaluates it, and what goals he sets in response to it. To focus on the motivational effects of KR, it then becomes necessary to identify tasks that may not be used at all or may be used only in a limited way

to correct errors on some future related performance task. Most of the reported research dealing with this dimension of KR has been limited to simple computational, physical, or verbal tasks (Ammons, 1954; Bilodeau, 1961; Chapanis, 1964; Judd, 1905). Means and Means (in press) found that it is possible to either facilitate or inhibit a student's performance by variation of the nature of information given him concerning his potential for performance in a given area.

Locke (1967) states that the positive influence of KR on learning and performance is one of the best established findings in educational and psychological research. Little research, however, has been done on the possible relationship of KR of performance in complex academic tasks and verbal participation in related structured situations.

Purpose of the Study

It was the intent of this study to investigate the possible motivational effects that KR of performance on some complex academic task might have on verbal participation in a related academic area. In order to investigate this effect it was necessary to identify some task whose results might not be used or used only in a limited way to correct errors in the structured verbal situation. It would seem that those academic achievement tests scores that are reported in general terms conform to the criteria of providing minimal cues for verbal participation in a related area. Thus, it might be inferred that differences in information given students about their aptitude for future performance in some academic area would result in differing levels of motivation for verbal participation in that area. It would also seem likely that these different levels of motivation would be paralleled

by differences in actual verbal participation.

This study was designed to test the following null hypotheses:

1. Differences in information given students concerning their academic aptitude for adolescent psychology will not differentially influence verbal participation in a structured situation.
2. Differences in past academic achievement will not differentially influence verbal participation in a structured situation.
3. Verbal participation will not be significantly influenced by the interaction of past academic achievement and type of information given students concerning their academic aptitude for adolescent psychology.

CHAPTER II

METHOD AND PROCEDURE

Subjects

Ninety-nine sophomore and junior students enrolled in three sections of an adolescent psychology course at Oklahoma State University served as the initial pool of possible Ss for this study. All three sections were taught during the same semester and by one instructor. On the second meeting of each section all students (N=93) enrolled and present were told that they were being administered an aptitude test that had been used in the past to predict achievement in the course. In reality the test was teacher made and had no previously demonstrated predictive validity. After testing was completed it was stressed to the students that even though the scores had been predictive of course success in the past, they would in no way be used to help determine final course grades. Students who enrolled late (N=2) or who were absent on the day of testing (N=4) were told that they would be given an opportunity to take the test at a later date. None of these later-tested students were used as part of the final sample studied.

The cumulative grade point average (GPA) through the previous semester was determined for those students on which such information was available (N=89). These obtained GPA's were taken from information in the school registrar's office. No student was aware that this information had been gathered. The 89 students were rank ordered by

grade point average. The median-break method was employed to classify each student as either high or low in past GPA. Students who fell within a range of plus or minus five ranks from the median (N=11) were thrown out of the possible pool of subjects. High GPA students (N=39) were assembled in groups of three by consecutive rank. Each member of every three-member group was then assigned at random to one of three treatment groups. The same procedure was followed for low GPA students (N=39).

Procedure

As part of the course requirements all students in the three course sections were required to attend an individual conference with the instructor so that a term research topic could be assigned. These conferences were completed during the first four weeks of class. Students assigned to Treatment I (N=26) were told in the conference that from the results of the aptitude test it would seem that they had high aptitude for mastery of the concepts taught during the course. Students who received Treatment II (N=26) were given negative information; that is, they were told that their scores on the test reflected little aptitude for the course. Students assigned to Treatment III (N=26) were given no information concerning the aptitude test during the conference. If a student from Treatment III or from those students who had been dropped from the study asked specifically about his performance on the test, he was told that scoring of the tests had not been completed but that he would be told his score when they were available. The test results were not discussed by the instructor in a regular class session.

From the 99 original Ss, 77 Ss remained.[1] During the sixth week of class the experimenter (a graduate student) attended the classes in place of the regular instructor. The experimenter (E) set up a tape recorder and informed the classes that the instructor was ill. E related to the class that the instructor had assigned several topics to be discussed during her absence. The class was told that the tape recorder was being used so that the instructor might be aware of what went on in class. E then proceeded to call the roll. If a class member who remained in the study was absent, the subject was dropped from the study. During the week three such subjects were absent. One was a high GPA student given positive information and two were low GPA students given negative information and no information respectively. All students within each class section had been previously stratified according to GPA and treatment. During the class period those Ss who remained a part of the study were randomly assigned to a discussion group according to a predetermined random selection sequence upon the alphabetical order of those present. This resulted in eleven discussion groups of six members each. Each discussion group contained one member from each of the six treatment cells.

Verbal participation was operationally defined as the number of words spoken by each participant during a ten minute structured discussion period. The word definition follows the standard typing definition of five spaces per word.

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[1]Between the individual conferences (treatments) and the discussion group measures, a high GPA subject given positive information withdrew from school.

CHAPTER III

RESULTS AND DISCUSSION

Results

A 2 x 3 Multiple Analysis of Variance design was employed to analyze the results of verbal participation in the discussion groups.

To insure that the data could meet the basic assumption of homogeneous variances, the F Maximum test was utilized. An F ratio of 4.339, a nonsignificant value, resulted.

An analysis of the differences in performance among the various treatment groups on verbal participation is summarized in Table I.

Discussion

Interpretation of Table I leads to the following conclusions: In this study past GPA had a significant influence on the scores made on verbal participation. Treatment alone had no significant influence on verbal performance scores. Treatment did, however, significantly interact with past GPA to help shape the verbal participation scores. An analysis of simple effects revealed that the significant interaction with GPA was between negative and positive information and between negative and no information. Thus the effect on verbal participation exerted by differences in information given subjects concerning their aptitude for the course was dependent on prior GPA. This interactive effect is graphically presented in Figure 1. The Duncan's Multiple

Range test (p=.01) revealed that low GPA students given negative information regarding their aptitude had significantly lower verbal participation scores than did nay other subgroup (cell). All other comparisons were nonsignificant (p=.05). Table II serves to clarify this interpretation.

TABLE I

SUMMARY TABLE FOR THE ANALYSIS OF VARIANCE

Source	SS	df	MS	F
Treatments (Information)	9,426.50	2	4,713.00	0.6915
Levels (GPS)	81,739.73	1	81,739.75	11.9927
Interaction (I x G)	69,432.25	2	34,716.125	5.0935
Error	408,949.00	60	6,815.816	
TOTAL	569,547.50	65		

*p = .01
**p = .001

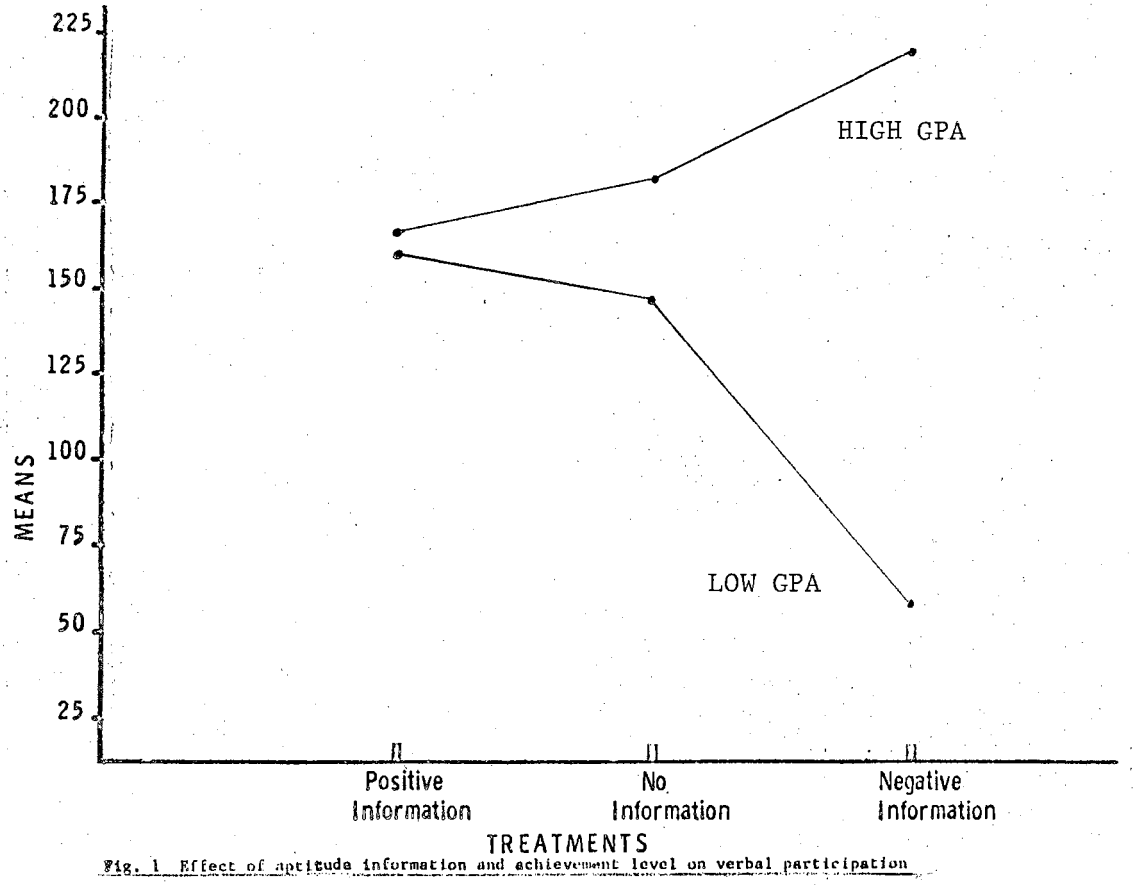

Fig. 1 Effect of aptitude information and achievement level on verbal participation

TABLE II

MEAN SCORES OF VARIOUS TREATMENT GROUPS ON VERBAL PARTICIPATION SCORES

	Positive Information	Negative Information	No Information	Combined
High GPA	166.55	220.73	182.91	190.06
Low GPA	161.36	58.54	148.91	122.94
Combined	163.96	165.91	139.63	156.50

CHAPTER IV

SUMMARY

The purpose of this study was to test the null hypothesis that: (1) differences in information given students concerning their academic aptitude for adolescent psychology will not differentially influence verbal participation in a structured situation; (2) differences in past academic achievement will not differentially influence verbal participation in a structured situation; and, (3) verbal participation will not be significantly influenced by the interaction of past academic achievement and type of information given students concerning their academic aptitude for adolescent psychology.

Seventy-two Ss enrolled in three sections of a clsss in adolescent psychology participated in this study. The Ss were told that they were being administered an aptitude test that had been used previously to help predict achievement in the course. Ss were rank ordered by past grade point average. The median break was used to form two groups--high GPA and low GPA. Ss within each group were randomly assigned to one of three treatments. Treatment I Ss were told that from the results of the aptitude test it would appear that they had high aptitude for mastery of the concepts taught during the course. Treatment II Ss were told that their test scores revealed little aptitude for the course. Treatment III Ss were given no information regarding their aptitude.

A 2 x 3 Multiple AOV design was employed to analyze student's verbal participation in a structured situation.

Results indicated no significant differences on treatments, significant differences on type of achiever, and a significant interactive effect.

The present study poses implications for educational research, both applied and pure. From the evidence gathered it seems possible to either inhibit or facilitate a student's verbal performance by variation of the nature of information given him concerning his potential for academic performance in a given area. It would seem appropriate to diversify this investigation to other academic and non-academic situations in order to assess the validity of the original findings. It would also seem beneficial to investigate the possible relationships that may exist between type of prior reinforcement and other organismic variables.

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