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ABSTRACT

This study sought to determine if an instructor of a competency-based course who sets performance standards at a comparatively low level might facilitate higher levels of student achievement through the use of written comments on unit posttests. Eighty-eight students in a graduate education course were randomly assigned to one of four experimental groups. Group 1 received comments on five posttests that encouraged them to adopt a higher "subjective" performance standard than that required in the course. Group 2 received similar comments on three posttests. Group 3 received standard comments on five posttests. Group 4 received no comments. Differences among the four groups on three measures of achievement were not statistically significant. (Author)

THE IMPACT OF WRITTEN COMMENTS ON STUDENT ACHIEVEMENT

by

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- ABSTRACT -

This study sought to determine if an instructor of a competency-based course who sets performance standards at a comparatively low level might facilitate higher levels of student achievement through the use of written comments on unit postests. 88 Ss in a graduate education course were randomly assigned to one of four experimental groups. Group I received comments on five postests which encouraged them to adopt a higher "subjective" performance standard than that required in the course. Group II received similar comments on three postests. Group III received standard comments on five postests. Group IV received no comments. Differences among the four groups on three measures of achievement were not statistically significant.

- INTRODUCTION -

Whenever an instructor uses a mastery approach, he must decide what criterion level he will adopt for each unit of instruction. Although techniques for computing an "optimal standard" have been proposed, most would agree that this decision to a large extent represents an arbitrary judgement (Cureton, 1971; Ebel, 1971; Millman, 1970 and 1973). Following a review of five general computational techniques, for example, Millman concludes ". . . they all required the use of judgement at some stage of their execution." (Millman, 1973, p.214).

However, careful consideration of various relevant factors (example: Are the skills necessary for future learning?) may make decisions regarding an appropriate standard somewhat more meaningful. The problem confronting an instructor of an in-service education course is that two of these factors appear to conflict. On the one hand, an instructor wants to set the criterion level for each unit at a realistic level whereby most students (active teachers) will be successful in

passing unit postests on their first or second attempt. A teacher who repeatedly fails several unit postests is not likely to attempt to implement the ideas presented in those units in his/her teaching. On the other hand, informal feedback from former students and some research evidence suggests that the overall achievement of students may suffer when unit standards are set at a comparatively low level (Blumfeld, et.al.,1971).

One way in which this apparent conflict might be resolved is to set unit standards at a realistic levd and press for higher levels of student achievement through other instructional means. One convenient option might be to provide written comments on unit postests. This instructional technique has been shown to influence test performance in other instructional settings (Hammer, 1972 and Page, 1958). Other forms of feedback, such as knowledge of results, have also been shown to influence test performance (eg. Cummings, et.al., 1971 and Snyder, 1972). These latter studies indicate that knowledge of results influences the goal setting behavior of students which, in turn, affects performance.

Written comments may also function as stimuli for goal setting behavior. As Johnson (1973) suggests, students may try within the limits of their abilities to give the teacher what they think he wants. If this is true, it is reasonable to predict that comments which focus directly on the "subjective" goals or standards which students adopt will have a strong influence on test performance. This prediction is supported by Esteban et.al.'s, 1972, finding that externally-induced goals promote achievement in a verbal learning task.

- OBJECTIVES -

This study attempted to answer the following questions:

1) Will written comments on unit postests facilitate student achievement in a competency-based course?

2) What are the differential effects, if any, of standard comments (e.g. "Good Show") and comments which are designed to encourage students to adopt a higher "subjective" standard of performance than that which is required by the course, (e.g. "I would like to see you set 13 as your mastery level.")?

3) Can a set to work toward a higher "subjective" standard be established quickly and maintained throughout the course?

- METHOD -

The 88 subjects in this study were enrolled in two sections of a graduate education course at a large Midwestern University during Summer Term, 1973. Eighty-six percent of the students were active teachers during the regular school year. The course itself consisted of eight distinct units. A complete list of behavioral objectives, written and verbal forms of instruction, a practice test, and alternate forms of a postest were carefully prepared for each unit. Those students who received scores of 12 or higher (80% accuracy) on a given unit postest received credit for that unit; those who scored below 12 received remedial instruction and attempted the alternate form of the unit exam. In general, the only form of feedback which students received on the first administration of a given postest was the number of correct answers and a written comment, or no comment according to assignment to experimental groups. However, the instructor reviewed specific items with individual students who requested this form of feedback.

Students in each section were randomly assigned to one of four experimental groups. There were 22 students in each group.

Experimental Group I: Higher Standard - Five treatments (H.S. - 5)
Students in this group received written comments on the first five postests which encouraged them to adopt a higher "subjective" standard than that required for mastery of each unit in the course. A different set of comments was used for each postest and comments were varied according to the student's level of performance. Students who scored 13 or higher on the first postest, for example, received the following comment, "Your score suggests that you should set a higher standard such as 13 as your mastery level." The comment, "I would like to see

you set 13 as your mastery level" was written on the postest of students with scores of 12 or 12½, while the comment, "You might profit from studying for each test as if 13 were the mastery level" was given to students who fell below the established standard of 80% accuracy.* No comments were written on postests 6-8.

Experimental Group II: Higher Standard - Three Treatments (H.S. - 3)

Comments for students in this group were determined by the same policies as those used for Group I (H.S. - 5). However, comments were made on only the first three postests; no comments were written on postests 4-8.

Experimental Group III: Standard Comments.

Students in this group received standard written comments on the first five unit postests. The same set of comments was used for each postest. The comments for the three achievement levels identified above were: "Good show. ." "Close, but you made it . . ", and "Don't get discouraged . . " No comments were written on postests 6-8.

Experimental Group IV:

Students in this group did not receive written comments on any of the eight unit postests.

- ANALYSIS -

Three measures of student achievement were determined:

1) Sum of scores on Unit Postests 6-8 (Total possible = 40)**

2) Comprehensive Examination: This exam consisted of six new items for each of the first six units of the course. The exam was unannounced and was administered on the final day of instruction. (Total possible=36).

3) Delay Score: Students could elect to take any postest at their convenience. The delay score was determined by adding the total number of instructional days which elapsed between day one of the course and a student's first attempt to pass each of the final seven postests. Hence this score could theoretically range from a low of seven for a student who completed all seven postests on the first day of the course to a high of 175 (7 x 25) for a student who took all seven postests on the final (25th) day of the course.

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* The complete list of comments for each experimental group is presented in the Appendix to this paper.

** The postest for Unit 7 consisted of 10 multiple choice items. All other unit postests contained 15 items.

A 2x4 (classes x treatments) multivariate analysis of covariance was computed as well as a univariate analysis of covariance for each of the three variables identified above. A student's score on the first unit postest and the number of days which had elapsed before a student attempted the first postest served as the covariates.

- RESULTS AND CONCLUSIONS -

Differences in means for the two classes were not large and were not statistically significant for any of the three dependent variables: ($p < .23$) for the sum of scores on postests 6-8; ($p < .82$) for the comprehensive exam; and ($p < .57$) for delay scores. An omnibus test of interaction effects (classes x treatments) was also not statistically significant: ($p < .38$) for the sum of scores on postests; ($p < .59$) for the comprehensive exam; and ($p < .86$) for delay scores. Therefore the data for the two classes was combined.

Table I depicts the adjusted means for the four treatment groups for each dependent variable. F - ratios and corresponding probability statements are also shown. Differences in mean scores are comparatively small and are not distributed in a consistent pattern across dependent variables. None of the differences is statistically significant.

TABLE 1: ADJUSTED MEANS AND CORRESPONDING F-RATIOS FOR THE FOUR TREATMENT GROUPS ON THREE DEPENDENT VARIABLES

	Treatments				
Dependent Variable	Exp.Grp.I (H.S.-5)	Exp.Grp.II (H.S.-3)	Exp.Grp.III (S.C.)	Exp.Grp.IV (N.C.)	Corresponding F-Ratio
Sum of scores on Postests 6-8	34.628	35.949	36.205	35.992	1.76 ($p < .16$)
Comprehensive Exam	28.614	27.045	28.685	28.342	.88 ($p < .46$)
Delay Scores	123.996	124.413	125.023	121.526	.53 ($p < .66$)

- CONCLUSIONS -

The results support the following conclusions regarding the three questions which were posed in this study.

1) Written comments on unit postests will not facilitate student achievement in a competency-based course at the graduate level.

2) Different forms of written comments will not have differential effects on student achievement.

3) It is meaningless to question how quickly a "mental set" can be established to work toward higher "subjective" standards.

However, certain limitations should be considered prior to any attempt to generalize from the disappointing findings of this study. First, graduate students may be so highly motivated or so conditioned to receiving comments that any attempt to provide incentives in the form of comments may be ineffective. This suggestion is consistent with Hammer's (1972) failure to find significant differences between "standard comments" and "no comments" for college students. Second, the comments designed to encourage higher "subjective" standards may not have been understood by all students. Several students, for example, asked the instructor to interpret the meaning of these statements.

Finally, the failure to find differences in achievement does not suggest that comments serve no useful purpose. The results of a brief questionnaire which was administered to approximately 75% of the students in both classes suggests that comments may influence student attitudes. 92% of the students in this sample, for example, could correctly recall at least one of the comments they received. Further, 62% of the students felt these comments had a positive influence on their attitude toward the course, while only 33% felt that the comments had a facilitating effect on their performance.

- EDUCATIONAL IMPORTANCE OF THE STUDY -

This study was designed to provide evidence relating to a crucial question confronting any instructor of a competency-based course. When performance standards are deliberately set at a comparatively low level in order to maximize student success, can higher levels of student achievement be maintained through other instructional means? In view of their convenience and apparent effect, an instructor might attempt to use written comments to encourage student achievement. However, the results of this study suggest that whereas this approach may influence student attitudes, standard comments or comments aimed at establishing higher subjective goals are apt to have little or no impact on student achievement in a competency-based course at the graduate level. Thus other forms of comments or other means of facilitating higher levels of student achievement must be sought.

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APPENDIX: COMMENTS PROVIDED IN EACH EXPERIMENTAL CONDITION

I. For Students with Scores of 13 or Higher:

A. EXPERIMENTAL GROUPS I and II: "Higher Subjective Standards"

Postest 1 - "Your score suggests you should set a higher standard such as 13 as your mastery level."

Postest 2 - "Are you using 13 as your mastery level?"

Postest 3 - "Remember . . . the magic mastery level is 13."

Postest 4 - (H.S. - 5 only) - "A mastery level of 13 seems to be working for you."

Postest 5 - (H.S. - 5 only) "Is 13 a high enough mastery level for you?"

B. EXPERIMENTAL GROUP III: "Standard Comments"

Postest 1-5 "Good show . . . "

II. For Students with Scores of 12 or 12½:

A. EXPERIMENTAL GROUPS I and II: "Higher Subjective Standards"

Postest 1 - "I would like to see you set a score of 13 as your mastery level."

Postest 2 - "Can you hit a mastery level of 13 on the next test?"

Postest 3 - "Remember . . . The magic mastery level is 13."

Postest 4 - (H.S. - 5 only) "Hope you're still using 13 as your mastery level.

Postest 5 - (H.S.- 5 only) "Are you thinking of a mastery level of 13?"

B. EXPERIMENTAL GROUP III: "Standard Comments"

Postest 1-5. "Close, but you made it . . ."

III. For Students with Scores of less than 12:

A. EXPERIMENTAL GROUPS I and II: "Higher Subjective Standards"

Postest 1 - "You might profit from studying for each test as if 13 were the mastery level."

Postest 2 - "Are you studying for each test as if 13 were the mastery level?"

Postest 3 - "Remember . . . the magic mastery level is 13."

Postest 4 - (H.S.-5 only) - "Hope you're still aiming for a mastery level of 13 when you study."

Postest 5 - (H.S.-5 only) "Are you working toward a mastery level of 13 when you study?"

B. EXPERIMENTAL GROUP III: "Standard Comments"

Postest 1-5. "Don't get discouraged . . ."