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Are Non-Graded Options "Making the Grade?"*

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Using alphabetical or numerical symbols to represent teachers' opinions of the value of students' academic efforts dates back to Harvard's founding in 1636. However, the limitations of grades in assessing entering behavior and instructional procedures have been evidenced almost as long. Endless controversies over grading practices and numerous schemes to avoid grading have always characterized this history.

Currently there is a national trend in the academic world to accept some pass-fail options on a restricted basis with more recent moves toward credit-no credit systems where a failing grade is not recorded publicly (Wolfe, 1968; Nations Schools, 1973). Several variations in grading practices have been introduced at the University of North Dakota during the last few years. This study attempts to compare the academic performance and motivation of education majors enrolled in a recommended teacher-preparation class (educational psychology) on a non-graded basis with those enrolled on a letter-graded basis.

The major reason for selecting this population is that the most extensive use of non-traditional grading patterns exists in the Center for Teaching and Learning, the unit within the University responsible for teacher education. In the elementary program, for example, a student has the option of taking all course work during a particular semester on a CR-CD-CW basis. The three notations stand for Credit Received, Credit Deferred and Credit Withdrawn. All CR notations earn full credit toward graduation; CD and CW notations do not. In presenting this grading system to the University Curriculum Committee, Center

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faculty argued for a process that supported "individualization, flexibility, alternative modes of learning and self-evaluation." They did not feel that letter grades encouraged maximum levels of learning or critical self evaluation.

The option outlined briefly above was developed principally for juniors and seniors. At this point in their undergraduate preparation, the majority of their course work is in the Center. During the 1972-73 year, the first year that elementary education students had such an option, 73% selected a CR-CD-CW pattern. (This number has declined during each subsequent year. Only 37% selected the CR-CD-CW option during 1974-75.)

Three research questions were asked. After adjusting for other variables, would there be a significant difference between students enrolled in a letter graded or non-letter graded notation system (1) in academic achievement, (2) in the number of out-of-class activities, and/or (3) in the expected final class grade projected from an overall grade point average.

The Sample

The sample for this research included all students (N=373) enrolled during the 1972-73 academic year in a recommended teacher preparation undergraduate course in educational psychology. Students could take the course on a letter graded basis (A, B, C, D, F) or on a non-letter graded basis (CR-CD-CW or S-U). It should be noted that secondary education students were excluded from the CR-CD-CW option; however, they could select an S-U pattern (Satisfactory-Unsatisfactory). Elementary education students taking the course would typically have been sophomores and not yet deeply involved in the Center and its CR-CD-CW option; hence, the majority opted for a letter graded pattern. Twenty-seven (7.2%) elected to take the course on a non-letter graded basis; three hundred and forty-three (92.8%) opted to take the course on a letter graded basis. The students' grading options were unknown to the

instructor and teaching assistants during these semesters. Every student was assigned a letter grade at the conclusion of the class; those who had opted for other than a letter grade had their letter grade converted by the registrar.

Sources of Data and Criteria of Achievement

The data for this investigation were gathered from the following sources: (1) Complete records kept by graduate teaching assistants on every student in the following categories: a. five unit examinations, b. final examination, c. outside books read, d. out-of-class activities, e. observations in the public schools, f. total points earned in the class, g. final grade. (2) Cumulative student records filed in the Registrar's Office and the Counseling Center.

The impact of selecting a non-letter grade was measured in terms of academic achievement and class motivation. Academic achievement in educational psychology was measured by examination scores, reading and observation points, and final grades. Examinations were based on the standardized questions appearing in the Instructor's Manual which accompanied the course text by Biehler (1974). Class motivation was measured by the number of activities voluntarily participated in outside of but related to the course.

Students were required to complete four of the five unit examinations, the final examination, and a minimal amount of outside reading and observing in a public school. On the first day of class students were presented a point system outlining the number of points that would be required for each letter grade. They were also given an activity sheet describing the ways in which extra points could be earned. The student was encouraged to set his own grade level and to involve himself in those activities which would earn him the points required.

Findings

Preliminary F Tests. Those selecting a letter grade and those selecting a non-letter grade did not

differ significantly as to grade point average, ACT composite score, or total number of hours completed. Both groups had an average GPA of 2.8, an average ACT of 21, and an average cumulated credit hours of 91. Further, both groups were balanced in the number of elementary and secondary majors and in their purposes for enrolling in the educational psychology class.

One-Way Regression Analysis of Variance. Each criterion used in the complete model was investigated individually or in combination to find out if it contributed significantly to the variation in achievement as predicted by the grading option. As evidenced by the data presented in Table 1, there is a significant difference between the means of the graded group and the non-graded group on several criterion variables: (1) The graded students earned a significantly ($p < .01$) higher number of reading points (49.221) than the non-graded students (37.40). (2) The mean points earned for public school observations were significantly ($p < .01$) higher for the graded group (119.79) than for the non-graded group (105.44). (3) The graded students earned significantly ($p < .01$) more total class points (407.15) than non-graded students (369.96). (4) The mean class grade for letter-graded students was 3.20 (where 4.0 equals A) and for non-graded students 2.61 ($p < .01$). A larger percentage of letter-graded students received A's (40% compared to 18%) and a larger percentage of non-graded students received D's and F's (19% compared to 4%).

It is important to note that on examination scores there is no significant difference in achievement between the two groups. On this traditional measure of skill and knowledge, the grading option did not differentiate the groups.

On the basis of these data, the first research question can be answered by stating that there is a significant difference in some areas of academic achievement between graded and non-graded students related to the grading option selected for this particular course.

Kolmogorow-Smirnov One-Sample Test (Siegel, 1956). Table 2 summarizes cumulatively the number of

TABLE 1

ONE WAY REGRESSION ANALYSIS OF VARIANCE WITH
GRADING OPTION AS PREDICTOR

Criterion	Maximum Points	Graded Mean	Non-Graded Mean	F
1. Four best unit exams	200	152.71	146.88	2.22
2. Final examination	100	75.95	75.48	<1.00
3. Reading points	65	49.22	37.40	11.80*
4. School observation points	130	119.79	105.44	15.36*
5. Total class points	520	407.15	369.96	16.21*
6. Final grade	4	3.21	2.61	6.82*

df = 1 and 371

*significant at .01 level.

activities participated in by both groups and the results of the K-S One-Sample test analysis. On the basis of these data, the second research question can be answered negatively. The distribution of activities in the total group is not significantly different ($D = .087$; $p > .05$) from the distribution in the sample of non-graded students. Non-graded students chose to participate in slightly fewer out-of-class activities.

The analysis of variance in Table 1 suggests that there is a difference in the level of achievement in

TABLE 2

KOLMOGOROV-SMIRNOV ONE-SAMPLE TEST OF PARTICIPATION
IN OUT-OF-CLASS ACTIVITIES

Number of Activities	Cumulative Distribution Graded	Cumulative Distribution of Participation Non-Graded
0	4.3	8.0
1	16.1	20.0
2	44.3	44.0
3	67.3	76.0
4	86.6	92.0
5	94.4	96.0
6	99.3	100.0
7	99.6	
8	100.0	

$D = .087, p > .05$

several of the activities. For example, equivalent percentages of students engaged in reading beyond the class requirements, but students selecting letter grades read more books and accumulated a significantly larger number of reading points. Similarly in public school observations, equivalent numbers of students participated in the activity, but the graded students earned a significantly larger number of points.

Actual Performance Compared with Expected Performance. All class registrants for whom cumulative GPA's were available ($N = 370$) were included in this description. By re-analyzing the data using the weighted score technique recommended by Reiner and Jung (1972), valid comparisons were calculated comparing the student's final class grade with the grade that would have been predicted for him on the basis of his cumulative GPA. No statistical analysis was attempted with these figures; however, 27% of the

graded group and 64% of the non-graded group achieved less than expected grade-wise. Sixty percent of the graded group but only 32% of the non-graded group performed as well as expected. Thirteen percent of the graded group but only 4% of the non-graded group did better than expected.

On the basis of these data, the third research question can be answered by stating that non-graded students underachieved more frequently than graded students.

Summary and Discussion

The impact of a student's choice regarding the grading pattern in this course was examined to determine if academic achievement and classroom motivation were influenced by modifying the competitive aspects of grading. Data from 370 students enrolled in a recommended teacher-preparation course during the 1972-73 school year were studied. The letter-graded students in this group did not differ significantly from the non-graded students as to cumulative grade point average, ACT composite scores, or total credit hours completed.

The results of the study suggest that selecting a graded option did influence the final grade received in the course. Students opting for a non-graded notation system achieved as well on class examinations but they chose to participate in slightly fewer out-of-class activities and earned fewer points in reading and public school observation assignments. Furthermore, a significantly larger percentage of the non-graded students underachieved.

The implications of this study should be a cause for genuine concern to the CTL teaching faculty, especially as the non-letter grade option becomes used more frequently by students. If non-graded students perform below expectation, choose fewer out-of-class activities, and achieve at a lower level than graded students, then the quality of the learning experience needs to be carefully evaluated.

On the other hand, University teachers should recognize that if the student's motivation to give

his best efforts to a course is being influenced only by the grading option he has selected then teachers may have to re-examine the content and procedures of their courses. The non-grading philosophy involves an entirely new approach to learning and evaluating. It is far more than just a change in the notation system. Grading is only the superficial form, not the substance of the motivation-learning-evaluation problem.

A great deal of empirical research on these questions needs to be done so that changes in grading and evaluation can be based on scientific merit.

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