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## THE RELATIVE SCHOLASTIC ACCOMPLISHMENT OF TWO CLASSES OF COLLEGE FRESHMEN

MARY ELLEN APPLEBY, GERALD GRANT, AND MACK T. HENDERSON

### INTRODUCTION

Beginning with the year 1941-42, the freshmen entering Grinnell College found a very different educational program from that of the last few years. The new program included the introduction of the four-course plan. Under this plan all courses meet four times a week and give four hours credit, and nearly all students carry four courses each semester. In addition, each freshman takes an orientation course, which last year carried one hour credit, and this year is compulsory but without credit.

A counselling program for freshmen was also introduced. Besides furnishing more assistance during the period of registration, it provides guidance throughout the year. Each freshman has an individual conference with his advisor every two weeks. Problems of personal and scholastic adjustment, including study habits and time-use schedules, are discussed at these conferences.

A third change affecting freshmen was made in the field of student employment. No freshman student is now permitted to obtain college employment during the first semester.

Since it seemed probable that such reorganization would affect student performance, an attempt was made to measure some of the resulting changes.

Specifically, this study was conducted to determine the difference in academic performance between selected groups of freshman students entering Grinnell College in 1940-1941 and comparable groups entering in 1941-42, and to make such inferences regarding causation as seemed justified.

### MATERIALS AND PROCEDURE

The data necessary for this study were gathered from the office of the registrar. These data consisted of the total number of hours carried by each student and the total number of grade points earned by each student during the first semester, for all the freshmen entering in 1940-1941, and 1941-1942. According to the Grinnell College grading system a student may earn grade points ranging from zero to four for each credit hour. This makes

possible the computation of a grade point average for each student by dividing the total number of grade points earned by the total number of credit hours carried.

In order to have comparable groups from each class, three matched groups were selected. The first group included all freshmen who entered Grinnell from the highest third of their high school classes and who ranked in the upper half of the American Council on Education tests (the scores determined by the tentative national norms) and a reading examination. For the year 1940-1941 this reading examination was the Iowa Silent Reading Test; for the year 1941-1942 it was the Nelson-Denny Reading Test. The second group consisted of those who entered college from the middle third of their high school classes, and were in the middle fifty per cent on both the A.C.E. and reading examinations. The third matched group consisted of students who ranked in the lowest third of their high school classes and who were in the lowest half on both the A.C.E. and reading tests. These primary groups were further sub-divided according to sex.

The mean grade point average was determined for each of these groups and the differences were found for each matched group. The significance of these differences was compiled by the Fisher *t* test.

To supplement these data further, the grade point average for the men and the women of each class was computed. These totals, of course, included many students omitted from the matched groups.

#### RESULTS

The data indicate that the mean grade point averages of the 1941-42 freshman groups exceeded those of the 1940-1941 freshman groups, except in the case of the middle third group of men.

The men of the first group had a difference of .139, which, interpreted by the *t* test, means that this difference will occur 50% more often than chance. The men of the second group differed .230 grade points, and such difference will occur 80% more often than chance. The men of the third group had a difference of .04, indicating a little better than chance difference. The women of the first group differed in their mean grades by .415 of a grade point. The *t* test indicates that such a difference will happen 90% more often than chance allows. The second group of women differed by .389 of a grade point, and this difference will happen 80% more often than chance. The women of the third group differed .827

of a grade point, which difference could be due to chance in only 1% of the cases. Taking the classes as a whole, the men differed but .185 of a grade point, and the women differed not at all. As checked by the critical ratio, the differences of the whole classes by sex were not significant (only 26% better than chance in case of the men). There are several possible explanations for the fact that the matched groups differed significantly while the classes as

Table I—Mean Differences of Matched Freshmen Groups

Matched Groups	Degrees of Freedom	Mean Diff*	t (Fisher)	Significance of mean diff. better than chance
Men Group I	51	.139	.679	50%
Men Group II	26	-.230	1.31	80
Men Group III	8	.040	.435	30
Women Group I	96	.415	1.700	90
Women Group II	15	.389	1.39	80
Women Group III	8	.827	3.44	99
Men of whole class	186	.185	.69	26
(Critical ratio)				
Women of whole class	218	0	0	0

\* These differences represent how much the 1941-1942 freshmen exceeded the 1940-1941 freshmen.

a whole did not. The classes included people who ranked high in a very small high school class, but lacked sufficient scholastic aptitude to be included in the top group at Grinnell College. The total groups included also students with reading difficulties, and students with high scholastic aptitudes who had not been motivated to use their ability in high school. The matched groups rejected all such persons of inconsistent scholastic behavior.

In interpreting the results of this study, several general notions should be kept in mind. In the first place, grades of the freshman class as a whole tend to form a normal distribution. Standards upon which grades are given may be raised or lowered, but approximately the same proportion of each grade will be given. The newness of the four-course plan should be considered, as it might change grading standards. The fact that freshmen students carried a heavier hour-load in 1941-42 is also important. It would probably make good grades more difficult to obtain, although the integration of study effort might allay this. These factors undoubtedly influence academic performance, although their influence is not easily measured.

CONCLUSIONS

Mean grades of the respective first semesters of the matched freshmen groups were higher in 1941-1942 than in 1940-1941.

These differences were reasonably significant in four of the six matched groups. Since the classes as a whole were about equal in performance, it seems fairly safe to conclude that students who are consistent in their ability and previous performance are doing better work under the four-course plan than under the previous system. Studies conducted when the new plan is more firmly established should be even more significant.

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