

THE EFFECT OF COLLEGE ENTRANCE DELAY  
ON COLLEGE GRADES

by

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## INTRODUCTION

This is a study of the effect of college entrance delay on college grades. The main objective of the study was to find something of value for guidance of exceptionally young high school graduates, or of others who for any reason contemplate delay in entering college.

## REVIEW OF LITERATURE

The field, of which this investigation is a part, was not wholly unexplored. Several studies bordering upon it were already published before this investigation began.

Strabel (6, 7, 8) found that boys out of high school two years or more before entering college did superior work. Only 65 students were involved in these studies and the period of college entrance delay was not constant. This might affect the obtained results.

The findings of Held (2) show that time out since high school graduation did not affect college grades. College entrance delay was only one of many factors being investigated in this study.

The conclusions concerning time elapsing between high school graduation and college entrance made by Strabel (6, 7, 8) and Held (2) do not fully agree. This may be the result of selective sampling, insufficient numbers of subjects or inadequate controls. It is the aim of this study to eliminate these

possible sources of error. This should give more reliable results.

Rogers' (5) study shows that the correlations between college grades is higher at the beginning than at the end of the college course. These findings justify the use of grades for the first two years of college as a criterion of college success in the present study. This point is confirmed by Irwin's (3) master's thesis. He found: "Zero-Order Correlations Between Cumulative Grades and the Succeeding Semester:

1st Sem x 2nd Sem	.7495
2nd Cum x 3rd Sem	.5967
3rd Cum x 4th Sem	.7815
4th Cum x 5th Sem	.7906
5th Cum x 6th Sem	.5906
6th Cum x 7th Sem	.6385
7th Cum x 8th Sem	.6989"

Heilman (1) found in his study of 390 freshmen at Colorado State College of Education that partial self-support while attending college had little effect on college grades. This justifies the assumption that work carried on for self-support is a minor factor that need not be controlled.

#### PROCEDURE

The members of the experimental group are male graduates of Kansas State College who entered the college as freshmen during the years 1924-1931 inclusive, after one year absence from high school. All members of the group who could be matched were included. The number used for this investigation was 103.

With each member of the experimental group was matched a male student of the same age at high school graduation who had

approximately the same high school grades and freshman test score, was from the same high school or a high school of equal size and distance from college and who went immediately to college. This is Group  $C_1$ .

For members of the second control group, each member of the experimental group was matched with a male student of the same age at college entrance, who had approximately the same high school grades and freshman test score, was from the same high school or a high school of equal size and distance from the college and who went immediately to college after high school graduation. This is Group  $C_2$ . The members of both control groups were also college graduates.

These control groups were the same in every way except that each student of  $C_1$  was one year younger than his matched student of the experimental group at college entrance and each student of  $C_2$  was the same age as his matched student of the experimental group at college entrance.

College marks and control factors for all groups were obtained from the Registrar's office and Psychology office of Kansas State College.

Degrees of motivation are somewhat differentiated by distance from which students come to college. This part of the motivation factor was controlled by matching each student of the experimental group with a student of each control group from the same high school or a similarly situated high school. These matchings also help to make the high school grades more comparable.

Table 1. Performances of experimental and control groups.

	Mean	S. D.	Dis.	S. D.	M.	Mean	S. D.	Dis.	S. D.	M.	Mean	S. D.	Dis.	S. D.	M.
X <sub>1</sub>	6.611	2.191	.216	1.994	1.994	7.291	1.994	.197	1.853	1.853	7.262	1.853	.181	1.853	.181
X <sub>2</sub>	7.330	1.603	.156	1.689	1.689	7.379	1.689	.157	1.759	1.759	7.243	1.759	.173	1.759	.173
X <sub>3</sub>	6.971	1.960	.193	2.096	2.096	6.738	2.096	.207	1.869	1.869	6.505	1.869	.183	1.869	.183

X<sub>1</sub> = High school grades

X<sub>2</sub> = Freshman test scores

X<sub>3</sub> = College grades for the first two years of college

Group E = Experimental group

Group C<sub>1</sub> = Control group number one

Group C<sub>2</sub> = Control group number two

It is assumed that other factors such as nationality and occupation of parents and facilities for study, etc., are equalized by the fairly large numbers involved and by avoidance of selection of students from any obviously atypical community.

To facilitate comparisons the results of this study are stated in terms of standard scores.

### RESULTS

In Table 1 following across line  $X_1$  the reader will find the mean of high school grades for Group E to be 6.611; the standard deviation of distribution 2.191 and the standard deviation of the mean .216. For Group  $C_1$  the mean of high school grades was 7.291; the standard deviation of distribution 1.994 and the standard deviation of the mean .197. Group  $C_2$  had 7.262 as the mean of high school grades; the standard deviation of distribution 1.833 and the standard deviation of the mean .181.

Lines  $X_2$  and  $X_3$  can be interpreted in the same manner.

For convenience of expression and calculation the differences found have been stated in terms of gains. These gains may be either positive or negative. The reader will observe that first line E of Table 2 shows the gain of mean college grades over mean high school grades to be .360+; that is, a positive gain of .360; standard deviation of gain .253, and critical ratio .142 for the experimental group.

The second line E shows the gain of mean college grades

over freshman test scores of .359-; that is, a negative gain, really a loss of .359; standard deviation of gain .205 and critical ratio 1.75 for experimental group.

Table 2. Gains and reliability of gains in performance of groups.

	Group	Gain	S. D. gain	C. R.
E	$Mx_3 - Mx_1$	.360(+)	.253	1.42
E	$Mx_3 - Mx_2$	.359(-)	.205	1.75
C <sub>1</sub>	$Mx_3 - Mx_1$	.553(-)	.192	2.88
C <sub>1</sub>	$Mx_3 - Mx_2$	.641(-)	.210	3.05
C <sub>2</sub>	$Mx_3 - Mx_1$	.757(-)	.217	3.48
C <sub>2</sub>	$Mx_3 - Mx_2$	.738(-)	.192	3.84

E = Experimental group

C<sub>1</sub> = Control group number one

C<sub>2</sub> = Control group number two

$Mx_1$  = Mean of high school grades for experimental group

$Mx_2$  = Mean of freshman test scores

$Mx_3$  = Mean of college grades

The succeeding lines of Table 2 should be interpreted similarly for Group C<sub>1</sub> and Group C<sub>2</sub>.

The final results were expressed in the form of differences in gains and reliability of differences in gains for Group E and Group C<sub>1</sub>; and for Group E and Group C<sub>2</sub>.

The gain of Group E in college grades compared with high

school grades was .913 greater than the comparable gain of Group C<sub>1</sub>. The standard deviation of this difference was .318; critical ratio 2.87.

The gain of Group E in college grades compared with high school grades was 1.117 greater than the comparable gain of Group C<sub>2</sub>. The standard deviation of this difference was .313; critical ratio 3.57.

The gain of Group C<sub>1</sub> in college grades compared with high school grades was .204 greater than the comparable gain of Group C<sub>2</sub>. The standard deviation of this difference was .265; critical ratio .770.

The gain of Group E in college grades compared with freshman test scores was .282 greater than the comparable gain of Group C<sub>1</sub>. The standard deviation of this difference was .293; critical ratio .96.

The gain of Group E in college grades compared with freshman test scores was .379 greater than the comparable gain of Group C<sub>2</sub>. The standard deviation of this difference was .281; critical ratio 1.35.

The gain of Group C<sub>1</sub> in college grades compared with freshman test scores was .097 greater than the comparable gain of Group C<sub>2</sub>. The standard deviation of this difference was .285; critical ratio .340.

To determine the critical ratio of the difference in gains it was necessary to find the standard deviation of the difference in the gains. The formula used for this calculation was presented by Lindquist and Foster (4).

$$S. D. \text{ diff. } g \sqrt{SD_1^2 + SD_2^2 + SD_3^2 + SD_4^2 - 2r_{12} SD_1 SD_2 - 2r_{34} SD_3 SD_4}$$

The standard deviations listed under the radical are standard deviations of the respective means.

Table 3. Correlations between variables used in the preceding calculations.

Group	$X_1$ vs. $X_2$		$X_2$ vs. $X_3$		$X_1$ vs. $X_3$	
	PE		PE		PE	
E	.665	.0370	.328	.0594	.240	.0627
$C_1$	.252	.0623	.376	.0576	.552	.0459
$C_2$	.446	.0532	.405	.0556	.491	.0505

$X_1$  = High school grades

$X_2$  = Freshman test scores

$X_3$  = College grades for the first two years of college

Group E = Experimental group

Group  $C_1$  = Control group number one

Group  $C_2$  = Control group number two

Table 3 shows in the first line the correlation of high school grades and freshman test scores; freshman test scores and college grades; and college grades and high school grades for Group E. The second and third lines show the comparable correlations for Group  $C_1$  and Group  $C_2$ .

The only one of the foregoing critical ratios that is statistically significant is 3.57 for Group E over Group  $C_2$ . This is the ratio of differences in gains of college grades

over high school grades.

This result agrees with those of Strabel (6, 7, 8) who found that students out of school two years did superior work in college. The experimental group in this study did do comparatively better work in college than their matched members of Group C<sub>2</sub>.

The other critical ratios show no significant difference. This result agrees with the reports of Held (2), who found absence from school between high school graduation and college entrance had no effect on college grades.

The findings of this investigation show the need for further study concerning possible differences in motivation of students who enter college immediately after high school graduation as compared with those students who do not.

The results of this study show no lowering of college grades for the first two years of college for students absent from school between high school graduation and college entrance when compared with grades of those who entered college immediately after high school graduation.

#### SUMMARY

This is a study of the effect of college entrance delay on college grades.

The aim was to find something of value for guidance of high school graduates who are exceptionally young or who for other reasons contemplate delay in entering college.

Grades received during the first two years in college by

students who entered one year after high school graduation were no lower than those received by students who entered college immediately after high school graduation.

Grades earned during the first two years in college by students who entered college one year after high school graduation were significantly superior to those earned during the same period by one group of students who entered college immediately after high school graduation and also superior to those of the other control group, but not significantly so.

It may safely be said that nothing in this study shows a detrimental effect on college grades from one year's delay in college entrance after high school graduation.

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