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In recent years, much attention has been focused on school reorganization in Iowa (cf. "Midland Schools," October and November, 1953; "The Iowan," December-January, 1953-54, and April-May, 1954.) Some proponents of reorganization claim that the "small high school" (a high school with total enrollment of less than 100 pupils) is not adequately preparing students for college. If true, it is to be expected that this would result in poor grades at the college level. One approach would be to determine whether or not there is a relationship between size of high school and scholastic probation. If it were established that there is a highly significant statistical relationship between high school size and probation, then a further study as to cause or causes would be indicated.

Specifically, this investigation was concerned with the relationship of the small vs. the large high school and scholastic probation at Iowa State College. Stated as a question in terms of a popular criticism: Do we find an undue proportion of students from small high schools on probation at Iowa State College?

Procedure

First, it was necessary to obtain the names of all the high schools in Iowa and their enrollments. These were taken from the Iowa Educational Directory for the year 1954-55. The list was alphabetized and corresponding enrollments entered. There were 805 four-year high schools in the list, but it should be noted that cities such as Des Moines, Council Bluffs, etc., with more than one high school were treated as one school.

The subjects selected for study were actually delimited more than appears in the title of this paper because an attempt was made to increase homogeneity. Therefore, the individuals with whom this investigation was concerned were scholastic probation, non-transfer freshman students from public (non-parochial) high schools in Iowa in the spring quarter of 1955 at Iowa State College. Comparison was made with entire freshman class under the same restrictions.

The probation list for the spring quarter, 1955, was obtained from the Office of Student Affairs. This list, containing 628 names, was taken to the Registrar's Office and the name of the high school from which each student graduated was determined. After applying the restrictions mentioned above, the list contained 441 cases. Listing for spring quarter probation was achieved by falling below a scholastic average of 1.75 for the winter quarter or for both the

fall and winter quarters. Scholastic average is calculated on the basis of A=4 points, B=3, C=2, and D=1. Actually, a grade average of 2.00 or better is required for graduation and placement on probation indicates real serious scholastic difficulties; unless corrected, may mean that the student will be dropped from college.

Results

Table I shows the distribution of the 441 scholastic probation students according to high school size. The total freshman distribution of 1685 students, Iowa public high schools only, non-transfer, is also shown. Since disproportions cannot readily be seen, column four ("Probation as % of Actual Distribution") was entered to show the percentage of probation students which each size of high school furnished. Any percentage below 26.2 means that that particular size of high school contributed less than the number expected, and over 26.2 means more than expected; that is to say, out of proportion with the total group.

Table I

Distribution of 441 probation freshman students and 1685 total freshman students enrolled at Iowa State College by size of high school, spring quarter, 1955.

Size of High School	Number of Probation Students[1]	Freshman distribution at I. S. C.[2]	Probation as % of Actual Dist.	Adjusted Probation Numbers[3]
1 - 49	20	90	22.2%	76.4
50 - 99	83	317	26.2%	317.1
100 - 199	109	371	29.4%	416.4
200 - 299	42	146	28.8%	160.4
300 - 399	40	184	21.7%	152.8
400 - 499	13	87	14.9%	49.7
500 -	134	490	27.3%	511.9
Total	441	1685	26.2	1684.7

1. Source: Office of Student Affairs
2. Source: Registrar's Office
3. Adjusted Probation Number = 3.82 x Probation number

Column five gives still another way of making comparisons. The "Adjusted Probation Numbers" shows the number of probation students which would be found in each size-category had there been a total of 1685 probation students instead of the actual 441. In

other words, had all the freshmen been on probation, column two would be identical with colmun three, but column five shows at a glance how much of a disproportion existed.

Table I gives no indication that the small high school, under 100, is furnishing an undue proportion of probation students; in fact, furnishes slightly less. However, in order to make a more precise evaluation, the high school sizes were pooled and set up as a tetrachoric correlation shown in Table II. Using Slaichert-Wert Tetrachoric tables, this correlation is found to be 0.017 (cf. Slaichert, W. M., "Techniques for Estimating Coefficient of Correlation from a Four-fold Table." Ph. D. thesis on deposit, Library, Iowa State College, Ames, Iowa.) A correlation of this size certainly gives no reason for believing that there is any association of importance between probation and size of high school, classified as large or small with a cutting score of 100.

Another interpretation can be made by applying the Chi square test of significance. In Table III, a sample of 441 non-probation students is tabulated by high school size in the same proportions as shown in Table II. Chi square turns out to be 0.306, a value far below even the 5% level (3.841). Again, we can say that probation and non-probation students are not significantly out of proportion with respect to "large" and "small" high school classification.

Table II

Tetrachoric correlation, probation and non-probation students from small and large high schools, spring quarter, 1955, Iowa State College.

	High School Size		Total
	Small < 100	Large 100 >	
Probation	103	338	441
Non-Probation	304	940	1244
Total	407	1278	1685

$r_t = 0.017$

The 441 scholastic probation students lend themselves to a still further interesting study. In Table IV we see that 215 or nearly half of the probation students did not return to Iowa State College the following quarter. Now, is this related to high school size? The tetrachoric correlation calculated for Table IV is 0.037. If we adjust the "dropping out" group, proportionally, to the same size total as the "returning" group (226) and calculate a Chi square, the

Table III

Chi square test applied to probation and non-probation students classified according to high school size, spring quarter, 1955, Iowa State College.

	High School Size		Total
	Small < 100	Large 100 >	
Probation (Observed)	103	338	441
Non-Probation (Predicted)	108	333	441

df = 1

Chi square = 0.306
Chi square .05 = 3.841

value is 0.600. This, too, is far below the 5% level (3.841). It would seem that whether or not spring quarter probation students return to college the following fall, is unrelated to "large" or "small" high school size from which they came.

It is the policy of Iowa State College to admit high school students "on probation" who come with less than a 2.00 or "C" grade average. In the fall quarter of 1955, 114 such students were admitted.

Table IV

Tetrachoric correlation; 441 spring quarter, 1955, probation students; 226 returning (R) fall quarter, 1955, and 215 dropping out (DO); classified by "small" and "large" high school size.

	High School Size		Total
	Small < 100	Large 100 >	
R	55	171	226
DO	48 (50)	167 (176)	215 (226)
T	103	338	441

$r_t = 0.037$
Chi square with adjusted values = 0.600
df = 1

The distribution of this group by high school size was 26 from small high schools (under 100) and 88 from large high schools (over 100). If we assume the same total freshman base group of 1685 students as was used in the previously described situations, we can prepare Table V. The tetrachoric correlation for Table V is 0.014, although this is open to some question because of the rather serious disproportions of the cell values. If we adjust the probation values, proportionally, to a total of 1571, and calculate Chi square, we get a value of 1.407. This, too, is far from acceptable significance. It would appear that students entering on probation do not come from small high schools rather than large ones, in greater numbers than they are proportionally represented in the entire freshman class.

Table V

Students admitted on probation, fall quarter, 1955, Iowa State College. Classified by high school size.

	High School Size		Total
	< Small 100	Large > 100	
Probation	26 (358)	88 (1213)	114 (1571)
Non-Probation	381	1190	1571
Total	407	1278	1685

r_t=0.014
Chi square with adjusted values=1.407
df=1

Summary

441 non-transfer students from Iowa public (non-parochial) high schools on spring quarter scholastic probation, 1955, at Iowa State College were compared with 1244 non-probation students (total of 1685 freshmen) with respect to high school size, "small" (less than 100) and "large" (100 and over). In this study, no evidence was found to indicate that the small high school furnished a greater proportion of probation students than the large high school. Of the 441 probation students, 215 did not return for the fall quarter, 1955, but the distribution was not significantly different from those returning. The 114 students admitted on probation, fall quarter, 1955, were not found to come disproportionally from small high schools as compared with large.

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