

RETENTION OF SUBJECT-MATTER IN PHYSICAL SCIENCE; MID-SEMESTER GRADES AS AN ENCOURAGEMENT FACTOR

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A year ago at the Oklahoma Academy of Science meeting at Tulsa we reported a study relating to the retention of subject matter in physical science survey courses. That report concerned the school year 1938-39. As then stated, students in physical science survey courses at Oklahoma Agricultural and Mechanical College are required to take at the end of the second semester a comprehensive examination covering the entire year's work. Last year we repeated the procedure of giving the final examination of the first semester at the close of the second semester also.

Statistical data on the tests of each of the two years are remarkably similar. In 1939-40 the means were lower in each semester and the correlations slightly less. However, the percentage of retention was slightly better than during the preceding year—about 83 percent in each case. This is probably the most significant fact relating to the testing program, indicating that the amount of retention is much higher than one would normally assume.

Comparisons for each semester:

	1938-39	1939-40
Cases	251	286
High score	116, 116	116, 108
Low score	62, 54	44, 37
Students making higher score on second test	46	33
Same score on each test	13	2
Greatest gain	91, 104 (13 points)	51—76 (25 points)
Greatest loss	100 66 (34 points)	106—56 (50 points)
Means	89.29; 84.15	83.8; 69.8
Correlation	.7130	.6211
Second test scores/first test scores	83%	83.3%
Standard deviations	11.52; 12.44	14.33; 14.58

An additional study was made to determine the relationship between marks made at mid-semester and the record made at the end of the semester. The marks of 2035 physical science students covering the years 1937-40 were studied. The results were as follows:

Mid-semester mark of A—147 cases.	126 A's, 19 B's, 2 C's.
Mid-semester mark of B—391 cases.	97 A's, 206 B's, 85 C's, 3 D's.
Mid-semester mark of C—790 cases.	9 A's, 144 B's, 506 C's, 122 D's, 9 F's.
Mid-semester mark of D—416 cases.	10 B's, 200 C's, 144 D's, 62 F's.
Mid-semester mark of F—271 cases.	1 B, 42 C's, 109 D's, 119 F's.

The above analysis, in general, indicates that a student's mid-semester mark will most probably be his final mark. A student with a mid-semester mark of "A" has almost 9 chances in 10 of having an "A" as a final mark,

a slight chance of making a "B" and no likelihood of making lower than "C". A student with a mid-semester mark of "B" has one chance of two of making a final mark of "B", but one chance in 4 of making an "A" or a "C". Only between the "D" mid-semester grades and the corresponding final marks does there seem to be much discrepancy. This discrepancy was largely, but not wholly, caused by the marks of one semester being quite off balance.