A Technique in Student Evaluation

by

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Evaluation of students is part of an educational program, and it is inseperable from the other duties of an instructor in the teaching of any course. Correct assessment of student's merit needs great skill on the part of the teacher, if he wishes to be successful in his profession. There exists, at present, a system of evaluation which, though well established over a period of time, by no means can be considered perfect. Some of its main defects are :

1. The student's merit is decided upon by a single final examination.

2. His performance throughout the period of study in the class room is not rewarded.

3. Consequently there is no urge in the student to be consistent in his studies and receive the full benefit of the course.

4. Since the greatest emphasis is on the finals the student gets anxious and excited so much at this hour that it is unwarranted and unworthy of.

The present work was initiated with the object of evolving a technique which will make the students work uniformly throughout the year, measure the student's merit more accurately and more efficiently with minimum efforts.

Very little published material on student evaluation techniques are at present available in literature.

Materials and Methods : The performances of 162 students of the Agricultural College, Coimbatore, who were enrolled in the Animal Hygiene course during the period from July, 1956 to January, 1958 and the results of the University examination in the same subject were made use of in this study.

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Owing to paucity of text-books mimeographed lecture notes were distributed to students at the beginning of the term, previous reading assignments were made and the lecture hours utilized for discussions, demonstrations and partly for lectures. Students were encouraged to talk and bring in their problems. Evaluation of students was made throughout the year by periodical tests, quizes and home work assignments. Their regularity to classes and tests, punctuality in carrying out the assignments were other factors watched for and recorded.

Quizes were tests conducted at intervals of about a month, each having a duration of half an hour. Each quiz had three main divisions, the first had fifteen statements to be distinguished true or false, the second five sentences for filling up the blanks and the third five brief answer questions. The first and second main questions were so designed as to test the student's ability to distinguish the right from the wrong and capacity to remember new scientific terminologies, dates and numbers. The brief answer questions were intended to measure the student's information power, exposition, arguing ability and skill to solve problems. The tests were so exhaustive as to cover the whole subject in detail and simultaneously easy to score without any bias.

The quiz papers were mimeographed sheets and the students answered on the same, which were then scored for hundred and graded as follows :

Score (points)	*Grade*
85 to 100	Excellent
70 to 84·9	Superior
55 to 69·9	Medium
40 to 54·9	Inferior
Below 40	Fail

They were then distributed to students while in small groups and thoroughly discussed to make it a sort of revision of lessons. This give an opportunity to students to make themselves sure of the correctness of the estimates made by the teacher.

Home work assignments were on problems wherein the students had to refer, collect, and present materials. They were graded in the same manner and recorded.

Record sheets were maintained for each student as regards their performances in quiz, home work, attendance and punctuality, and these were available to them when desired. Time required to set up quiz papers, evaluation and posting grades were accurately recorded.

To test the reliability and efficiency of the quiz system the performances of the students in the quizes were compared with those of the existing terminal examinations which were of the duration of three hours each and scored by another lecturer of the same department teaching the same subject partly. The performances were also compared with the results of the University examination to decide the merits of the new system.

At the finish of the course the students were asked to express their opinion about the new technique of evaluation and compare the quizes with the terminal essay type examinations in a confidential questionaire which were later anaysed.

Correlation analysis, averages, standard deviations and tests of differences were done by methods described by Mills (1938) and Snedecor (1946).

Results: 416 quiz papers took a total of 15 hours and 30 minutes for evaluation with an average of 2·23 minutes for each. It took only three hours to evaluate a class of 81 students and the score and grades in most of the cases were posted the next day of the tests by the lecturer. A terminal examination of the essay type for the same class took about 13·5 hours for evaluation on an average of 10 minutes for each paper.

Reliability tests indicated that the quiz system is as efficient as the terminal essay type examination, if not better, in measuring the student's merit. The correlation coefficient between the scores of students in the two types of tests was positive and highly significant ($r = + ·6$; $p < ·01$; Fig. 1).

Table I illustrates that the students' scores in quizes were always higher than the scores in the terminal examinations. The average of the four quizes for all the students ranged from 38·5 to 78·5 with a mean and standard deviation of 59·9 ± 9·7 and the same for the terminal examinations ranged from 28·8 to 66·2 with a mean and standard deviation of 45·1 ± 8·6.

TABLE I

The mean of 74 students' score in the four quizes and essay type examinations in Animal Hygiene.

Serial number of the test	Mean score (class average) in quiz per cent	Mean score (class average) in terminal essay type examination per cent
1	58·8	46·1
2	61·3	46·2
3	62·8	44·8
4	55·0	43·4
Weighted mean for the four tests	59·9 ± 9·7	45·1 ± 8·55

Nevertheless both the systems ranked the students in the same order. The quiz was consistent in giving higher scores. The excellent student in the terminal examination was excellent in the quiz and the inferior same in both (Figure 1).
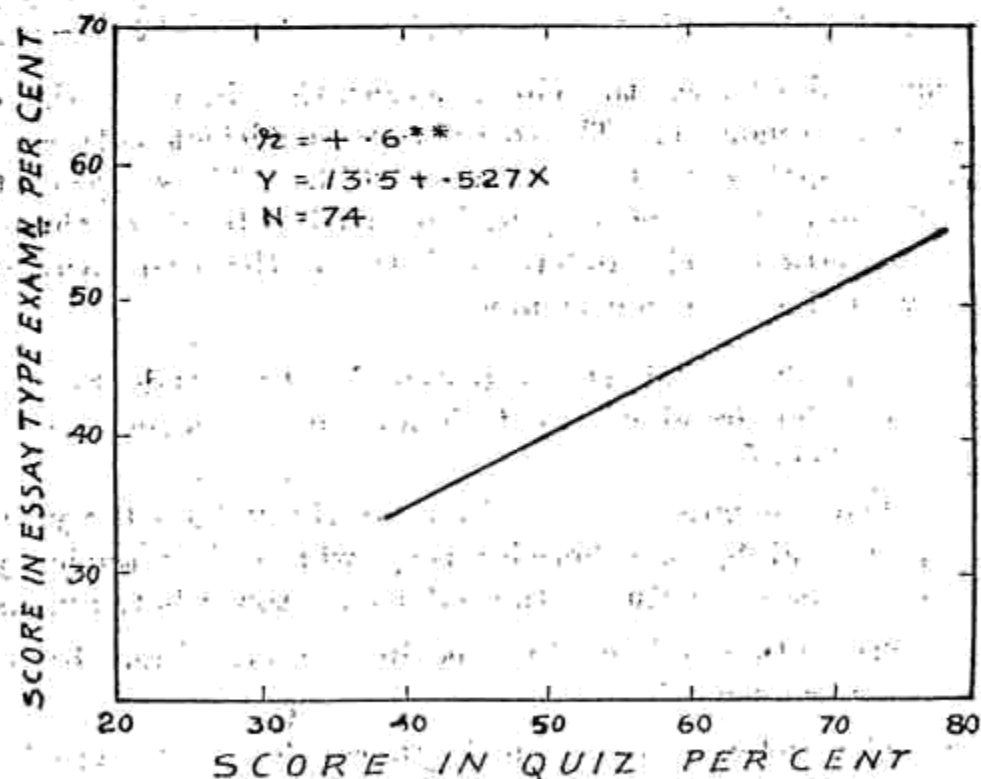

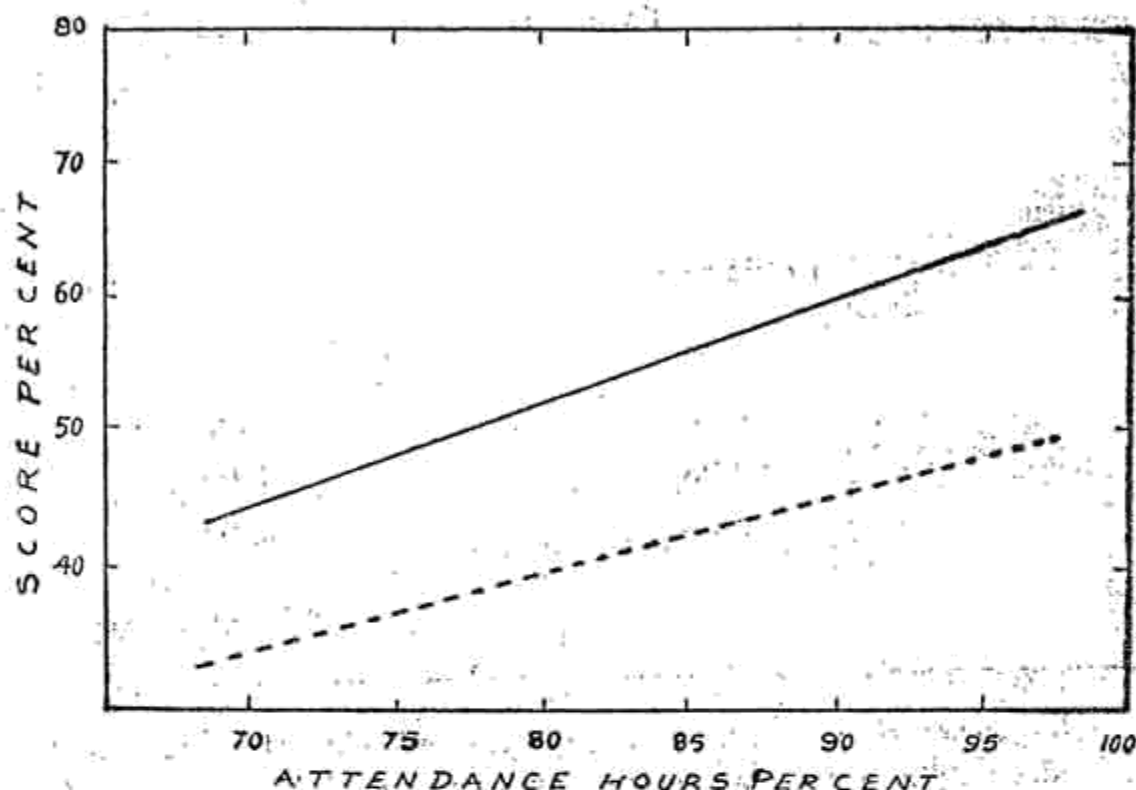FIG. 1. REGRESSION OF THE PERFORMANCES OF STUDENTS IN ESSAY TYPE EXAMⁿ ON THEIR PERFORMANCES IN QUIZ

FIG·2.   REGRESSION OF PERFORMANCES OF 74 STUDENTS
IN EXAMINATIONS ON THEIR ATTENDANCE

━━━ QUIZ · · · · · · $r = + \cdot 435^{**}$; $Y = \cdot 765X - 8 \cdot 66$
╌╌╌ ESSAY TYPE· · $r = + \cdot 374^{**}$; $Y = \cdot 578X - 6 \cdot 74$

Figure 2 illustrates the closer association between the quiz score and class attendance. The correlation coefficient between the former two was $+ \cdot 435$ and the later two $+ \cdot 374$. This suggests that the quiz tells more about the students' regularity to class than the terminal examination. The difference between the two correlation coefficients were, however, not significant.

Some of the opinions expressed by the students in the confidential questionaire about the technique of evalution employed herein are as follows:

1. "The students are made to study throughout the year by periodical tests, otherwise they will have a tendency to postpone their studies to a later date towards the finals".

2. "Students got bold to talk in the class and bring in their problems".

3. "The system of recording is thorough and unbiased and this helps maintenance of discipline, besides the students are satisfied with the judgements made on the basis of records unlike in some wherein hostility creeps in".

4. " The students have to be thorough with the subject to answer the quizes and they cannot afford to be selective in studies ".

5. " The system of grading as Excellent, Superior, Medium etc. is a stimulus for putting in greater efforts for higher grades ".

6. " This system fosters better student staff relations since the teacher has to be unbiased necessarily in his estimates ".

The clear verdict of superiority of the quiz system over the existing terminal essay type examination has been well demonstrated by the students giving very high score to the former in respect of the several characteristic (Table II)

TABLE II

Results of analysis of the scores given by 77 students for the quiz and essay type examination in respect of the different traits in each.

Trait	Points in favour of	
	Quiz per cent	Essay type examination per cent
1 Accurate measurement of student's merit	62·2	37·8
2 Creation of a competitive spirit by grading	74·7	25·3
3 Elimination of bais in scoring	67·2	32·8
4 Relief of stress of examination	52·9	41·1

Table III compares the merits of students judged by class performance with their performances in the University examination. It will appear that out of the 28 students who failed in the University examination 26 (92·8 per cent) were from the medium and inferior classes and only 2 (7·2 per cent) were from the superior class. This adds further evidence to the fact that the new technique ranks the students in the same order as the other tests and that it is sound enough to be implemented if and when found to be more advantageous.

TABLE III

Final grade of students at the finish of the course	Number of students in each grade	No. of failures in the University Examination in each group	Per cent of the total number of failures	
Excellent	2	Nil	Nil	
Superior	17	2	7·2	7·2
Medium	70	13	46·4	
Inferior	35	11	39·3	92·8
Fail	8	2	7·1	
Total	132	28	100·0	100·0

Discussion : The primary object of education is to impart knowledge in arts, science and technology to students so that it may spread and be utilized in day to day life for the benefit of mankind. Evaluation of students as part of the educational programme has two important functions: (1) to make the students acquire more knowledge, and (2) to grade the students according to merit.

Evaluation made throughout the year effectively does the first function since students have to be consistent in their endeavours to get higher grades. Accumulated grades over a period of time will, no doubt, give a more accurate estimate of the student's merit than one decided upon by a single final test.

In the technique of evaluation employed herein several factors that go to measure the student's merit are taken into consideration, the performances in quizes, home work, attendance, regularity in carrying out the assignments, etc. All these were correctly recorded in personal sheets, so that a glance through the records will indicate if a student is intelligent or dull, regular or irregular, making progress or at a stand still or declining. Since these records were accessible to students they were guides to them as well.

The system of grading as *Excellent, Superior,* etc. threw in a new competitive spirit and urged the student population to be on constant endeavour to acquire more knowledge and thereby higher grades.

There are still no substitutes for tests in deciding the students' merits. The author has preferred the quiz system to the existing terminal examinations in view of the several advantages it possesses

over the other. It can be conducted at more frequent intervals without taking much of the teacher's valuable time. In other words it is a good time saver. A class with a strength of 81 students could be evaluated and their grades posted in 3 hours, whereas the existing system would take 13·5 hours for the same job. The saving is, therefore, 10 hours for each test which is quite substantial.

It is also remarkable how an half hour quiz could measure the student's merit as accurately as, if not better than, the three hour essay type examination (Figure 1).

It is easy to correct the quiz papers. With the key even an assistant can evaluate them as efficiently as the lecturer and thus the latter can be relieved of this work when he is occupied otherwise.

The quiz tests are exhaustive and the students have to prepare their lessons thoroughly, and be not selective, to get better grades.

The key for quizes are thrown open and students given an opportunity to make themselves sure of the unbiased estimates.

The true and unbiased nature of the records foster healthy and closer student-staff relations and encourage students to bring in their problems boldly to the teacher.

The comparison of the quiz scores with the scores of the terminal essay type examinations was made only to test the relative effciency of the quiz over the other and it has proved itself to be as sound and efficient as its counterpart if not better. This is further supported by the fact that this technique has ranked the students, more or less, in the same order as the University examination. 92·8 per cent of the failed students in the University examination were from the medium and inferior groups and only 7·2 per cent from the superior groups (Table III).

It is, however, disappointing that two superior class students, who were consistently good throughout the course, should have failed in the University examination and thus fallen victims to chances. Conversely, if 6 out of 8 failed group students have got through the University finals it can be attributed only to chances. It is not possible to avert such difficult situations and distribute justice equitably to one and all unless and until steps are taken to include the class performances in the final judgement of the student's merit.

Records as in the present technique, when incorporated with the University examination in assessing the student's overall merit, will no doubt minimise the student's anxiety and excitement at the last hour of the finals to a great deal.

Students who are directly concerned with and who have experienced the two systems are sometimes better judges in many ways and they have given their clear verdict of superiority of the quiz over the existing system (Table II).

In view of the above findings it is suggested that the new technique of evaluation, which measures the student's merit more accurately and efficiently, be given a wide trial in the interest of the teacher and the taught and attempts made to incorporate the student's performance in the class based on such records with the University examination.

Summary : A new technique for student evaluation has been developed and tested over a period of two years in the Animal Hygiene course in the College of Agriculture, Coimbatore.

Its merits and advantages over the existing system are analysed and discussed.

It is recommended that a wide trial is given to this new system and steps taken to incorporate the class performances with the University examination in deciding the student's final merit.

REFERENCES

Mills, F. C.   1938 *Statistical methods;* Revised edition; Henry Holt and Company, New York.

Snedecor, G. W.   1946 *Statistical methods;* Fourth edition; The Iowa State College Press, Ames, Iowa,