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I

EXAMINATIONS, NEW AND OLD, WISE AND OTHERWISE

Perhaps no feature of school procedure has, during the past two decades, been so much under fire as the examination, a fact due in large measure to the development of a science of education to the point where traditional practices find the need of justification or eradication. During the latter decades of the nineteenth century, the subject had played a role of supreme importance, very much as had corporal punishment a century earlier. College entrance examination boards, state examination boards, county examinations, local examinations, and examinations, professional and general, made the life of the student miserable—in fact were a significant factor in the large elimination of pupils. "Education by examination" came to be the craze more or less, when lo and behold! some one with wisdom and foresight and a goodly share of common sense, perhaps also with a sense of humor sharpened by reading foolish answers to foolish questions, made the inevitable discovery that examinations do not examine, and that a finely devised method of education of doubtful value, being a star of little magnitude, had been placed in a position of first magnitude.

Most of us have in our professional lifetimes seen something of this changed attitude toward the examination and the examination system of educating. Within local school systems we have seen the reduction of its value until most progressive schools count it as not more than one-third in the calculation of a pupil's term grade. In fact, it is tending, fortunately or unfortunately it is hard to say, to be crowded out of the lower schools, although the monthly test usually remains to serve very much the same purposes. State examination systems are on the wane and, in the case of providing teachers for the schools of the state, professional pre-

paration in normal schools is being substituted as fast as it is feasible. Universities and colleges are substituting intelligence tests for the entrance examinations where pupils fail to bring credentials from a properly accredited high school.

Besides these tendencies to displace the large emphasis of a few decades ago on the use of the examinations, three constructive reforms have come about. In the first place, due to the recognition of the lack of objectivity and equality of teachers' questions, standard tests have been devised in most of the elementary school subjects and a number of the high school subjects, whereby teachers may quickly and with relative ease make an unbiased comparative study of the work of the pupils of their classes or grades with pupils throughout a large number of other schools. Many teachers are now using tests in arithmetic, silent reading, geography, and history, to supplement the use of their own examinations. Secondly, rankings of students are today much more frequently made in terms of the the letters, A, B, C, D, E and F according to some scientific grouping system, rather than by percentages, a system long proven unreliable and subject to the personal equation. In the third place, recognizing that no complete substitute has yet been found for the old-fashion examination and believing that it may be made a real teaching tool rather than a graveyard of non-achievement and mis-information, a number of teachers are endeavoring to develop new types of examinations based on the methods of modern experimental psychology. It is the purpose of this paper to explain and illustrate two such forms of examinations.

I. COMPLETION-TEST OR INCOMPLETE STATEMENT EXAMINATIONS

One such type of examination is made up of connected discourse in which certain words are omitted and may be called the completion-test or incomplete statement examination. This is based upon psychological tests long

in use and recently brought to the attention of American teachers widely through the Trabue Language Scales. The quotation below represents part of such an examination given in the second term of an elementary course in educational psychology, based definitely upon Strong's *Psychology for Teachers*, which is a book with very meager subject-matter, but rich in experimental work. The numbers given in connection with the blanks did not occur in the original examination, but are inserted to assist in discussion.

"Psychology, considered as the science of ----1----, treats all mental processes as situation-bond-response combinations. The bond may be defined psychologically as ----2---- or physiologically as ----3----. Bonds are either inherited or ----4----. Learning, either in or out of school, consists in forming ----5---- between ----6---- and ----7----. The work of teaching consists of presenting ----8---- so as to get the desired ----9----. In learning new material, as for example saying the alphabet backwards, one's progress is usually ----10---- at first and ----11---- later. This curve is much ----12---- than the curve for re-learning old materials, as saying the alphabet forwards. In learning vocabularies and like materials, as for example that *agricola* means farmer, two methods are possible, namely ----13---- and ----14----."

In scoring, full credit in blank 1 was given for the insertion of "behavior" or "human behavior," no credit being allowed for other answers. In fact no student in the class missed this because it was so clearly and frequently stated in the text and in class discussions. 2 was correct when "associations" or "connections between situation and response" was written in; and 3 with "nerve connections" or "synapses". In 4 the answers allowed were "learned", "acquired", and "formed". 5, 6, 7, 8, and 9 required the answers respectively "bonds", "situation", "responses", "situation(s)", and "response(s)". 10 required the answer "rapid" or "fast" or some similar term, and 11 "slow", or "slower". This proved the real test question, flooring all but three members, twenty percent of the class. 12 allowed such answers as "higher", "steeper", "more sloping", "more fluctuating", or the like. 13 allowed the answer "rote memory" or some term of

similar meaning, and 14 "associative shifting", the author's term, or "logical memory".

In setting this test, the purpose in mind was to provide a brief summary test of minimum essentials" of a large amount of subject-matter, and to make it of sufficient difficulty so that the best pupil in the class would be likely to attain a perfect score. Twenty blanks were made and the resulting range of errors was from 0 to $7\frac{1}{2}$, fractional scores being used where apparently the pupil had the correct idea but the incorrect word or phrase. The interesting fact to the examiner was that the results of this test, which was probably answered in fifteen minutes, agreed closely with the final record of the class when made up independently, the three students who made the perfect score being given the final grade of A, the one who did poorest, standing lowest in the final rating.

At another time a similar test with fifty blank spaces was set for a larger class with a different text, a shorter period of preparation and with less regard for the probability of a perfect score, with the result that the range was from a score of 1 to a score of 47 with no distinct mode or large group at any point. This indicates the fallacy of a grading system such as is in general vogue, where ninety to 100 percent of the pupils receive grades that vary in such a way that the poorest is more than one-half the best. The writer has also used this examination in the history of education and secured a range from 40% correct answers to 100%, even where the class was fairly well selected and uniform in preparation.

Aside from the fact that this form of test has proved unusually helpful in indicating the probable relative rankings of pupils, it has proved even more helpful in diagnosing the weakness in fundamental concepts or attitudes without which the pupil would be bound to be handicapped later. The large number of such concepts which can be brought into play in so little space with so little time requirement make it especially desirable as a partial test, at least when a topic is completed before another is undertaken. If the teacher desires, other questions involving discussion can be taken up for a part of the hour. This will at least have the value of proving a check upon the completion test and perhaps the further purpose of bringing

out certain values that might be neglected in the completion test. Usually students rather enjoy it as a game and are glad to be relieved of the grind of extensive writing. More than the usual amount of interest is shown in discussing the results afterwards and the actual checking up of papers may be left to the students who thus make the examination a means to learning as well as a means to testing.

II. TRUE—FALSE OR RIGHT-AND-WRONG JUDGMENTS EXAMINATIONS

This examination is not new and yet it has not come into use as largely as it may be expected to do in the next few years. Its form differs from the completion-test in that all statements are made in full, but that some of them are inaccurate and others accurate, the student being asked to write "true" or "false" following each and to omit none. An excellent statement of the theory of the test and of its practical use in elementary geography work is given by McCall, under the title, "A New Kind of Education" in the *Journal of Educational Research*, Vol. 1, No. 1. It is taken up here because of the lack of accessibility of the above article for many teachers and also for comparison with the completion-test examination described above. It is based upon a common form of experiment in the psychology of judgment.

The quotation below is of ten such questions out of a list of twenty presented to a class in the history of education. Following each is the word "true" or "false", which indicates the accurate answer, and a number which represents the number of members of a class of 16 who answered correctly; for instance, the first statement was false and only three members gave the correct answer, probably not realizing the importance of the phrase "young and inexperienced". It may be added that the class work in the course was largely of a discussion nature with constant reference to a wide range of readings both of secondary and source material.

1. The history of education is one of the most practical studies for the young and inexperienced teacher. (False—3)
2. Primitive education illustrates well the adaptation of methods to purposes or aims in education. (True—10)

3. The Veda was the textbook of ancient Egyptian education. (False—11)
4. Athenian supremacy in the Delian League was contemporaneous with her brightest era educationally. (True—14)
5. Perhaps the most important contribution of the education of the Spartans was their demonstration of the values of physical education. (True—15)
6. The sophists were professional teachers of rhetoric. (True—9)
7. Later Athenian education provided large opportunities for the public education of women. (False—7)
8. Plato developed a new method of teaching by questioning. (False—14)
9. Aristotle has been called the world's "best educated man". (True—16)
10. Xenophon, a pupil of Socrates, was progressive in his views on education. (False—11)

The judgments on the other ten questions which had to do with Roman and early Christian education were made with a somewhat higher degree of accuracy. The discussion following this examination, that is upon the return of the papers, proved unusually interesting and the fact was brought out that a good deal of our knowledge is scarcely to be labelled either absolutely true or false. For example, the average school child would not hesitate to say that the statement, "Columbus discovered America in 1492" is true, but the advanced student in history in the college or university will be influenced in his answer by the fact that earlier probable discoveries of the Norsemen have placed the date and the person in the above statement somewhat differently. This fact of course does not shake our views of the importance of the work of Columbus and its greater significance for subsequent history.

The advantages of this test are not unlike those of the completion-test type of examination. Students enjoy them more than the older forms of examinations, partly because the game element seems to be involved and partly because they are relieved of the large amount of writing which is imposed in a "discussion" type of examination. The class discussion afterwards tends to bring out important points of emphasis which the teacher finds have not been sufficiently made before. That is, the examination teaches as well as tests, if rightly handled. Furthermore, the teacher is bound to enjoy a test of this kind

much more than the typical kind, because he is saved a volume of labor in reading.

This leads to the question of a method of grading the true-false examination. McCall in the article referred to above argues for the method of subtracting the wrong judgments from the right judgments, on the basis that due to the law of chance a pupil who knows nothing about subject-matter of the test would in general answer one-half wrong and one-half right, thereby securing a score of zero.. Such a method makes allowance for chance judgment. The results can then be interpolated into percentages if the teacher is using the percentage basis in grading. If he is using letters and grades on general merit (see *The Virginia Teacher*, Vol. 1. No. 1), the number of correct judgments may be taken as the ranking of each student. He would thus more quickly obtain, that is, without the additional process of subtraction, the relative standing of each pupil in the group, and can assign the appropriate standing with very little difficulty.

Perhaps it ought to be said that a teacher will find that this test as well as the completion-test is a test of something more than facts or ability to think in the field which is being tested. Undoubtedly to a certain extent each becomes a test of general ability or intelligence. For this reason, if no other, the teacher who is giving it frequently must be careful that he fall into no regular systematic arrangements of true and false statements or the brighter pupil will quickly sense this and thus alter his record considerably. If a teacher does not have at hand means for mimeographing his statements, he can have his pupils place numbers upon the test paper corresponding to those on his list and then simply read the statements to the class asking them to write the one word, "true" or "false". This has the disadvantage of making it impracticable for the student to refer back to the statement and change his first judgment. Experience with this and other psychological tests, however, does not indicate the advantage to be very great, as frequently pupils will go back over a list of judgments and, having found one doubtful or wrong, change others that were formerly right. This is perhaps proof of the common-sense notion that first impressions or intuition are after all pretty fairly accurate. As to the criticism that

will be raised at this point, namely that such a test will encourage guessing, one may reply that this will largely depend upon the teacher and his attitude, and retort that both from the experience of reading and taking examinations there is abundant evidence that guessing is a large factor in answering the old-fashioned examination. An excellent feature of this form of examination and one that has valid pedagogic results is the opportunity otherwise so infrequently afforded for the pupil to estimate his own achievements. It is easy here for him to do his own grading with the teacher reading the correct answers. In fact if the form of test were given often, this would result in great time-saving to the teacher. The teacher who has tried to have pupils grade an examination of the general discussion type will remember that all failing pupils graded themselves passing and that all very good papers were graded as median in value, a thing which can not happen where scoring is so mathematically accurate.

III. CONCLUSIONS

1. The time has not arrived to advocate the complete laying aside of the examinations now in vogue, but it is time to advocate the introduction of supplementary examinations which place the estimate in more objective terms, which are more interesting to students or at least less dreaded than the usual form of examinations, and which make for less opportunity of bluffing on a large scale. These are some of the advantages of the completion-test and true-false types of examinations.

2. Through these forms of examinations, the teacher will improve the value of the examination, it is believed, from the teaching side, and we must not forget that it has been frequently proved that testing periods, if rightly conducted, are rich in teaching results. At the same time he may utilize the child's co-operation in the work of examination, actually developing the trait of self-examination.

3. That these forms of examining will be found more immediately practicable in history, geography, science, and English than in mathematics, reading, stenography, and Latin, is evident. However, the alert and growing teacher will find some applications to almost

any subject; or better still he will be led to discoveries of the utilization of similarly well-founded conclusions of modern psychology in devising new tests. Here is a great unexplored field.

4. Finally, let not the teacher think that on the whole these or any other new ventures in the form of examinations are going to relieve him of the necessity of work. The greatest care needs to be taken in framing the statements in the true-false examinations and in making certain that in the completion-test examinations the blank calls for one thought and preferably one phrasing of that thought. Ease and satisfaction in grading the results, a check upon one's work and upon the efficiency of one's teaching, and the lessening of drudgery—these, together with other advantages noted above, outweigh the slight additional time that needs to be taken to prepare proper educative stimuli or situations in the form of examination questions.

W. J. GIFFORD

II

BROWNING THE TRUTH-TELLER

"To this end was I born, and for this cause came I into the world, that I should bear witness unto the truth."

While the Pilates who would shirk responsibility are fumbling with the question "What is truth?" and are producing the impression that it is, maybe, nothing in particular, Browning's clear voice rings out in tones that "give the world assurance of a man."

He stands firm upon the fact that, whatever mists we may have permitted to obscure it, *something* is the truth, and that the essential truth to live by is not far from any of us. He says many wholesome things about getting at the truth; and he puts it squarely up to us to tell it straight when we have got at it.

Although truth itself is far from being a frame of mind, our mental attitude has much to do with our reaching it or missing it. Why do we so often get things wrong? What stands in our way when we seek the truth even about any given event in our

midst? Browning says the trouble is apt to be some cherished theory, prepossession, prejudice.—Something happens—drops suddenly into the pool of our community life. With an outcry we crowd the bank

"Around the rush and ripple of any fact
Fallen stonewise, plumb on the smooth face
of things,"

and try to guess by the splash what it really was. We even investigate a little—reach down into the muddy water to find the thing itself. We do not succeed in this our "feel" after the vanished truth, though it is

"Honest enough, as the way is: all the same,
Harboring in the center of its sense
A hidden germ of failure, . . .
To neutralize that honesty and leave
That feel for truth at fault, as the way is too;
Some prepossession such as starts amiss,
By but a hair's breadth at the shoulder-blade,
The arm o' the feeler, dip he ne'er so bold,
So leads arm waveringly, lets fall wide
O' the mark its finger, sent to find and fix
Truth at the bottom. . . . 'Tis there—
The instinctive theorizing whence a fact
Looks to the eye as the eye likes the look."

If we have leaned too far in one direction, we are pretty sure to have a neighbor whose prejudices incline him to the other side. He comes to try it with

"the opposite feel
For truth, with a like swerve, like unsuccess."

Sometimes the difficulty is intellectual pride, as in the Greek Cleon. Sometimes it is mere sentimentality. One man likes "pink"—and for no better reason renders some weighty decision. In *A Woman's Last Word*, the wife consciously barter truth under threat of losing her husband's love:

"What so false as truth is,
False to thee?

* * * * *

I will speak thy speech, Love,
Think thy thought."

But most often our failure to reach fact is due to a sort of liking for the warm, soft haze of self-deception and a fearing to face the bare truth lest it prove stern and cold. In Browning's belief the primal curse is that now, as in the beginning, Satan

"Bids man love, as well as make, a lie."

The familiar short poem first named *France* and later entitled *Count Gismond*