EXAMINATIONS: MOTIVATION FOR LEARNING!

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The most important purpose of testing should be to facilitate learning. The process of testing should enable the student to discover where he stands in his progress through a given course, and at the same time uncover weaknesses that can be helped by remedial study. Through specially structured examinations, the teacher should be able, not only to determine whether the student is doing satisfactory work, but at the same time to evaluate his own degree of accomplishment as a teacher.

Throughout my tenure as a teacher, I have felt that examinations should serve as a gage in the aforementioned areas of student-teacher relationships; however, in recent years it has been necessary for me to reassess my personal situation on the effectiveness of my teaching with especial concern on the testing phase.

Louisiana Tech requires some form of student-evaluation of each teacher as a part of a rather complex teacher evaluation plan. Student evaluation of my teaching, in addition to their evaluation of many other teachers in our college who have shared their evaluation results with me, indicated that the examination phase of teaching generally received the lowest rating among those points that were considered. Such points as, frequency of examinations, examination questions clearly composed, examinations that enhance the understanding of the subject, examination returned and discussed promptly, were among those points used by the student in evaluating the teacher.

It has been my responsibility to teach an introductory course in animal science each academic term for more than twenty years. Needless to say our industry has changed significantly, particularly in most recent years. This has necessitated many and great changes in animal science teaching. In the past ten years the background of those enrolled as freshmen in the animal science course that I have taught has changed rather drastically from predominantly rural to a predominantly urban group. The number of women students has increased significantly. The sex ratio has changed from one to twenty female/male ratio to a one to eight from 1962 to 1972. Many non-majors from various segments of the university have chosen the introductory animal science course as an elective. The calendar has also changed from a semester to a quarter system, which retains the semester credit. Such a system of instruction requires long lecture and laboratory periods. In view of the above mentioned known changes, and in all probability other changes of which I am not aware, I have found it more difficult to teach students and have the satisfaction of the same degree of accomplishment that I had felt previously. There is further evidence that all students have not been motivated to learn; teachers in advanced animal science courses have found that students do not retain very much basic information given in the first course. Many of these teachers would ask such subtle questions as "Did you cover, in the freshman class, the six basic nutrients or the general purposes for which the body uses nutrients?" My reply was "yes" after which their response would be something similar to this. "The sophomore and junior students appear to have very little factual knowledge and are even more limited in their understanding of basic nutrition as if they had not been exposed to such material previously."

When one is placed "on-the-spot" in situations such as this it is certainly embarrassing, yet it could be a blessing in disguise. I resolved to try to do something toward encouraging greater in-depth learning and retention.

Since a student's attitude toward an examination affects many aspects of his behavior, his test performance, his feeling toward the subject in general as well as his opinion of the teacher I have explored ways and means of preparing examinations to serve as tools to motivate, rather than test per se.

For each of three quarters, five seventy-five minute examinations were administered to an introductory animal science class ranging in size from forty to fifty-five students. Each one-hundred point examination consisted of two parts: (1) short answer questions in the form of true-false, multiple choice, matching, analogy, completion, rearrangement of items, association and understanding, and (2) essay-type questions which could be answered briefly. One or two examination questions were prepared of each of the short answer types and one or two essay questions were also prepared to emphasize the same basic facts and principles.

Questions that were developed from a brief section of subject material on nutrition from the text book entitled **The Science of Animals that Serve Man** by Campbell and Lasley will serve to illustrate the type of examination employed. These authors devoted six pages to a presentation on the two energy nutrients, carbohydrates and fats. At the conclusion of the chapter on nutrition there were six basic questions relating to carbohydrates and fats among the study questions. The following is a list of those questions:

1. What are carbohydrates? What chemical elements do they contain?
2. List the main classifications of carbohydrates.
3. What carbohydrates are easily digested by animals? Which ones are not?
4. What is the major nutrient supplied by carbohydrates? How is it utilized in the animal's body?
5. How do facts and oils differ in their chemical composition from carbohydrates?
6. Why do fats supply more energy than carbohydrates when they are metabolized?

No doubt any teacher would be pleased if all students in the class could respond with an answer that indicated a clear elemental understanding of these two nutrients based on the student's reading the material, listening to the lecture and writing correct answers to the suggested questions. It has been my experience that many students today cannot be motivated to study and consequently learn by this traditional approach.

The following is a list of two questions, each representing several short-answer types that were prepared based upon the chapter content relating to carbohydrates and fats.

True-False
If the statement is true, circle the T; if the statement is false, circle the F.

1. Carbohydrates are preferred to fats as an energy yielding nutrient for livestock. T F
2. More time is required for the complete digestion of a simple fat than for the digestion of a simple carbohydrate in the digestive tract. T F

Multiple Choice
Each of the following statements is followed by five alternative answers of which only one is correct. Select the correct answer and place its number in the blank at the right.

1. The major nutrient which is the main source of energy in livestock and poultry rations is (1) fats, (2) cellulose, (3) carbohydrates, (4) molasses, and (5) corn. ( )
2. Plant oils such as linseed oil and soybean oil contain a high proportion of (1) saturated fatty acids, (2) simple sugars, (3) unsaturated fatty acids, (4) short claim fatty acids, and (5) carbohydrates. ( )

Completion
In each blank to the right place the word or words that give a complete answer.

1. The nutrient that furnishes the most potent source of energy in a ration is _____.
2. The carbohydrate that is found mostly in the cell walls and woody portions of plants and utilized appreciably for food by ruminants is _____.

Matching
Below are two columns. For each word in column two there is a phrase that matches it in column one. Find the phrase and place its number in the blank to the right of the word it matches.

1. A nutrient containing carbon, hydrogen and oxygen with hydrogen and oxygen usually present in nearly the same proportion as in water.
2. A nutrient that contains carbon, hydrogen and oxygen with much less oxygen in proportion to the carbon and hydrogen.
3. A nutrient that contains carbon, hydrogen and oxygen and approximately 16 percent nitrogen.

1. Protein _____
2. Fat _____
3. Carbohydrates _____

Analogy

There is a relationship between the terms one and two on the right. Select a fourth term whose relationship to the third term is the same as between the first two terms.

1.	Nutrient	:	Feed Source	Nutrient	: Feed Source
	Carbohydrates	:	Corn	Fats	:_____
2.	Nutrient	:	Amt. of energy yielded	Nutrient	: Amt. of energy yielded
	Carbohydrates	:	1	Fats	:_____

Arrangement

The following represents a group of energy-yielding compounds – rearrange them in order from the most simple to the most complex chemically.

1. (a) Cellulose _____
   (b) Lactose _____
   (c) Starch _____
   (d) Glucose _____
2. (a) Acetic acid _____
   (b) Stearic acid _____
   (c) Arachidonic acid _____
   (d) Butyric acid _____

Association

Each of the following items have something in common. Place in the space provided a word or phrase which will identify their common property.

1. (a) Glucose
   (b) Cellulose _____ .
   (c) Starch
   (d) Lactose
2. (a) fatty acids
   (b) phospholipids _____ .
   (c) sterols
   (d) waxes

Understanding

Listed are some effects of certain actions or processes. Place a word or words in the blank at the right that causes these effects.

1. Energy is released from nutrients resulting from cellular metabolism _____ .
2. Digestion of cellulose by ruminants _____ .

The recurrence of the same general ideas from one short-answer examination type to another appeared to broaden the student's understanding of the subject matter. This conclusion was based upon the fact that the responses to short-answer essay questions were generally concise and clear, and much improvement was noted in comparison to previous years when no such effort was made to recall information relating to basic principles when preparing short-answer questions. It was observed that all students appeared to read the questions carefully and review the examinations rather thoroughly, prior to submitting their papers. Only a few careless mistakes were noted. Students were observed to relate to a previous question or questions when making the most immediate response. It was further noted that some questions which were initially answered incorrectly were apparently changed to a correct answer as the student reflected back to a previous question. Apparently it was obvious to most students that the examinations contain the recall feature; however, it was not specifically called to their attention prior to, during, or after the examination. However, at the end of the course, more than one-half of those students unsolicitedly responded with favorable comments stating that the examinations given throughout the term stimulated them to study much more than they would otherwise have done.

The final examination for each term was designed only to test, and the reference feature from question to question was not included. Most students responded with answers ranging from acceptable to excellent on short-essay discussion questions indicating that they had learned rather well some basic information. Preliminary results indicate that students who have taken the introductory animal science course, under the examination procedure as outlined, have enrolled in sophomore and junior level courses with a broader base of retained facts and principles than was indicated prior to the initiation of the recall or reference type examination.

The time involved in the preparation of these examinations is much greater than for a conventional random-type examination; however, there is also some reward for the teacher in that it can enhance professional growth. There is a greater need for thinking through instructional objectives prior to lecturing and preparing the examinations. It is also possible that the teacher could be greater challenged to give current attention to the subject matter presented.

It is not likely that we will ever reach perfection in the teaching-learning relationship, yet we should always strive toward that goal.

No test is completely reliable and there is always a certain amount of error, even in the best test administered under ideal conditions yet both teacher and students must have some means of measuring progress. Since there is so much at stake in testing it appears that the testing phase of teaching should not be slighted and I'm convinced that we as college professors need to give test preparation more attention now and in the future than apparently we have in the past.

SO YOU WANT TO BE AN ADVISER*

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*The following treatise was written in response to a young and inexperienced college professor's plea "Will you tell me what I should know and do to advise college students."

I wonder if you really do want to advise students. It demands a tremendous investment of self. You must be prepared to put your students' interests above yours much, if not all the time, to maximize your efforts. Rotary International's motto of "Service above self" fits the attitude you must assume.

Why this kind of dedication? There are many important things to do and they demand your best inputs. The student must be evaluated. He must be seen for what he is; what he hopes to be; along with the physical, academic, and emotional equipment he has to accomplish his goals. Going one step further you must appraise the realism of his goals to determine whether they are worthy of him. This is not easy and you will frequently wonder, "Am I seeing the picture – am I really able to judge accurately?" Complete dedication to understanding your student is the only avenue open – all else falls short.

How do you get the rapport with students to learn these things? It takes time and many kinds of attributes and skills on your part. Let's look at a few:

The biographical sketch – Your first contact with the freshmen advisee can take place prior to his arrival on campus. Upon learning that he is coming send him a carefully prepared biographical sketch outline. This will do at least two important things. One, it tells the boy in a positive manner that you want to know about him, and secondly his parents will know someone cares about their son.

Causing the student to spend time preparing information about himself before he gets to college gives him the opportunity to think in terms of relating to you. This is important because when he gets to college he believes he already has one person to whom he can relate. In other words he feels he has a friend in this New World and that is vitally important to him at this stage of his thinking.

You should not brush off lightly the parental attitude toward your overture of friendship. Consider what parents are doing – they are literally losing their child. They know it, even though