evaluation process particularly on sale day when value is determined by the high dollar bid.

The station also has a paid student work position titled student manager. Duties of this position deal with boar care, feeding and weighing, and facility cleaning and neatness. In addition, the manager is responsible for boar movement on sale day. Upon completion of each test period, the student summarizes feed usage for each pen.

Students have enrolled for Independent Study credit while working on boar evaluation data. Internships are completed by students who do not have swine experience. These students work under the academic supervision of the station manager.

Benefits and Their Scope

The station annually serves these courses: Animal Science I, Swine Production and Livestock Diseases. In addition the asset is used for independent studies and internships. The annual student education benefit class hours is in excess of 300. The station is also used by local FFA chapters. The boars evaluated at the station have been used in three research projects. Publications have resulted from two of the projects.

The station has evaluated 1094 boars; 496 of these have been sold. The average sale price is $430. This has generated $213,000 agriculture income for the local community. 83.9% of those sold were to buyers within a 50 mile radius of the station. The station has a 34.7% repeat buyer history and a 16.5% multiple boar purchase per sale. Buyer purchase decision is influenced most by boar average daily gain.

Boar sales are promoted by use of audio visual equipment. High indexing boars are video taped. These tapes are mailed to potential customers. These tapes have helped export 14 boars to four foreign countries. In addition, boars have been sold into 12 different states. Top selling boar was a Yorkshire that sold for $9,000.

Average daily gain has increased from 1.9 to 2.34. The average of all tested is 2.13. The average of all sold boars is 2.21. Feed efficiency has improved. The average of all tested was 2.62 pounds of feed per pound of gain. Boars sold averaged 2.49. The range has been for 3.49 to 2.03.

Conclusions

The Southeast Missouri State University Swine Test Station is successful because education and community worked coopertively for mutual gain. The model discussed here can be cloned by other institutions and their communities in jointly funding and supporting projects with significant pay off potential in mutual academic and community benefits.

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LECTURE:
Love it
Leave it or
Leaven it???
Thomas A. Greene

Have you ever taken a course that made you wonder why the teacher didn't hand out copies of his lecture notes instead of read them to you? When college professors lecture they are upholding a fine old tradition of western education, but they may not be achieving educational objectives as efficiently as they might if they considered alternative teaching tools.

In its pure form, the lecture is "an instructional technique through which an agent presents an oral discourse on a particular subject (Verner and Dickinson, 1967, p. 85)." Usually it is not used alone, but is augmented with demonstration, visual aids (chalkboards, e.g.), textbook assignments, etc., all incorporated into a course. However, in spite of the existence of many alternatives, lecturing remains the predominant tool for information transfer from teacher to student in modern universities. Given this situation, it behooves us to ask the following questions: 1) When is lecturing the best way to teach? 2) When is it not? and 3) What are some alternatives to lecturing?

Verner and Dickinson (1967, p. 94) assert that lecturing is or is not a useful teaching tool depending on the situation and the educational goals. They believe that lecturing can be used profitably to introduce and create interest n a topic, where the lecture will be followed by discussion, reading, independent study, or other teaching methods more suited to achieving cognitive behavioral goals. The lecture should accomplish two things here: first it should serve to orient the students' learning processes and prepare a cognitive framework for the subsequent acquisition of subject matter knowledge, and second, the lecture ought to be a motivational tool, creating interest and desire to learn. The emphasis of an introductory lecture should not be on information transfer, but on facilitating learning by the other methods to be employed in the course.

An example of the use of lecture to introduce, define, and create interest in a topic is the twenty-minute "seminar" given by a scientist who is visiting from out of town and is asked to discuss his or her recent research. Typically these talks consist of a 3-5 minute introduction followed by a 10-15 minute slide presentation. The main purposes are to arouse interest in the topic, create discussion, and enhance the image

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of the speaker; information transfer and learning are only secondary in importance.

Verner and Dickinson (1967) warn that lecturing should not be used when educational goals go beyond simple short-term knowledge acquisition to long-term retention, application, synthesis, and analysis of complicated concepts, because long-term retention and higher level cognitive learning goals are not efficiently achieved by lecturing. Since it is precisely these higher level cognitive processes which are most often at the heart of university instructional goals, it seems obvious that we should consider other teaching methods besides lecturing. These other methods may replace the lecture, or they may be added to it to increase comprehension and retention.

Recently various computer-based instruction systems have been proposed as replacements for lecture instruction at the university level. MacQueen et al. (1983) reported on a chemical engineering course taught entirely by computer in which students gained mastery of very difficult concepts at their own paces and scored as well on tests as did a control group which took the course in a traditional lecture-textbook format. Even more recent is the introduction of a computer-based interactive video (CBIV) systems, which many educators believe have the potential to replace traditional teaching methods in many subject areas. CBIV systems combine video technology with interactive computer software to enhance the teaching effectiveness of the computer programs by adding visual and audio dimensions. The combination of video and computer technologies has much to recommend it, and we are doubtless only beginning to discover the usefulness of CBIV.

However, for the foreseeable future, teacher-based instruction will probably remain the primary vehicle of education in universities, and lecturing will certainly play a role in this instruction. Therefore, we will examine some ways to enhance the effectiveness of lectures by adding other teaching methods to the teacher's repertoire.

Discussion

The discussion method is a student-centered, teacher-directed conversation about a specific topic, often a reading assignment, in which the leader asks preplanned questions about the topic to elicit thoughtful responses and to enhance comprehension of the topic by the students. Hansen (1983, p. 41) says of the method:

> Effective discussion comes about through exploring the implications of some shared body of material which is clearly written but whose substantive meaning and significance is not fully clear as it stands. Dialogues of this type not only develop the ability of students to think reflectively, they also stimulate the interest and increase the understanding of both the student participants and the instructor.

The discussion method can be effectively used in conjunction with lectures to help students expand on lecture material, develop new ideas, and solve problems for themselves (Weaver 1983). Discussions can stimulate analysis, synthesis, and evaluation of concepts, and can bring about affective behavioral changes (Hansen, 1983). Clearly the discussion has a place in university courses whose teaching objectives encompass the deeper cognitive processes.

Demonstration

The lecture-demonstration or "show-and-tell" teaching approach is not used to its full potential in university instruction. Demonstrations are particularly effective to illustrate processes, and the technique lends itself well to such diverse subjects as physics, biology, mechanics, agricultural sciences, and chemistry. Seeing the process helps students comprehend and remember the principles behind the process much better than a simple verbal explanation.

Models

The use of visual models ("visual aids") and tactile models in instruction helps learning by stimulating senses other than the auditory, reinforcing the assimilation of knowledge. Roberts and Thurston (1984) recommended that two- and three-dimensional models be employed for medical-related education after their research indicated that students who heard a lecture where models were used retained information better than students who heard the lecture without models.

Textbook Assignments

Textbooks are, of course, widely used in universities, but often only play a supplementary role to the lecture material, which is considered to be the core of the course. When this happens the lectures become in effect a verbally transmitted "textbook" which the students are expected to copy down and study. Time in class would be used much more efficiently if active learning took place there instead of verbal-to-written information transfer, and the students studied published or otherwise prepared material at home to increase the depth and breadth of their understanding of the course.

Independent Assignments

Term papers, projects, and other independent study assignments offer students the best opportunities to study a topic in depth, comprehend and analyze it, and synthesize and present new ideas in a coherent form. Doing independent library research on a subject gives students a much better feel for the state of the art and provides a whole array of viewpoints from which the student can obtain an overview of the entire field. As Fleury (1984) put it:

> The effect of lecture-textbook teaching is to divide knowledge artificially into unrelated bits. The library is the one place this division can be overcome, and an interdisciplinary approach to independent learning can be encouraged and supported (p. 104).

Conclusion

There are other ways to "leaven" the lecture, of course, but the above seem to be particularly ap-

plicable at the university level. Teaching methods should be chosen because they can best be used to accomplish specific educational objectives, not because they are easy, or familiar, or even because they are traditional. Many methods, including the lecture, are appropriate in a university setting, but any of them can be misused.

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TEACHING METHOD REPORT

Making Introduction to Technical Reporting Related to the Agricultural World of Work

Jacqueline J. Storby

Introduction

The Related Education Division of the University of Minnesota Technical College, Waseca provides agriculturally-oriented students with approximately one-third of the course work required towards their Associate in Applied Science degrees. One of these required courses is Communications 1203, Introduction to Technical Reporting.

Two major areas are covered in this course: correspondence and reports. In the correspondence section, letter types include memorandums, inquiries, requests, orders, responses, complaints, adjustments, collections and thank you letters. The correspondence section also includes a unit on the "Job Package" where students write letters of application, resumes, requests for recommendations, interview follow-ups, job acknowledgements, status inquiries, job refusals, and job acceptances.

The report section covers the broad areas of research, documentation, graphics, and organization. A specific large concentration focuses on a feasibility study with shorter projects worked in, such as a process description, instructions, minutes, as well as periodic and accident reports.

Oral presentations are worked in both areas. The "Job Package" gives the student an opportunity to interview and the written feasibility report is given orally to disseminate to classmates knowledge learned in their field of interest and expertise.

Methods

To make communicating more interesting and applicable to the student as well as to stress the absolute necessity of the need for it, the following methods are an example of what might be done.

In the correspondence unit after general background material is taught, including the process of transactional writing, persuasion and scientific argument, style and tone, and basic principles, the interaction begins. All students write inquiry, request, order, complaint and collection letters. Before they are corrected they are exchanged between students for response letters, adjustment letters and thank-you letters. Students find it easy to respond to letters that are well written. However, they find it more difficult to respond to those that are lacking in sufficient information. When questions arise, students become aware that the only form of communication they may use is in writing, therefore, more letters are written until the complete cycle is finished with the original request completed.

The object of this procedure is to have students send and receive letters that are actual examples of types they will be dealing with in the work world. Clarity and conciseness are achieved through this process as well as the ability to write the original letter well so as not to have to rewrite assignments until they are correct. Hopefully, students are also learning efficiency for the world of work.

The feasibility report unit is taught covering research, basic principles of organization, documentation and bibliography. Where the teaching method in this area may differ, selection of a topic is made by the student with the instructor's consent after the student has found available material for the report. Students garner ideas through laboratory classes in their specific fields of interest as well as on the home farm or their POP (Pre-Occupational Preparation) experience. Because of the type of technical education experience our students receive, much of their information comes from lectures, laboratories and interviews with instructors who are highly trained in the areas of research. The reports the students complete will be useful now and in their future work as well.

When the students later give their reports orally, visual aids are highly stressed. Because of the diversification of student areas of expertise, this oral report unit is especially interesting for all of the students.

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