

SCIENCE EDUCATION

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Abstracts

Column in agricultural magazine as educational text. JAMES MITCHELL SMITH, Instructor, New Castle Area Vocational School, New Castle, Indiana 47362, also Box 23 Liberty, Indiana 47353.——The column, "Over the dashboard" from the magazine, "Confinement" is used to present a point of view as well as basic agricultural information.

The opening paragraph points the direction of the column. A repeating phrasing, almost a poem, occurs in the middle part of the column and the body of the information is in the later third of the column. Except that the last paragraph gives the summing up of the subject.

As the writer of "Over the dashboard", I use the column with adult classes in agriculture which I teach in a vocational school. From time to time readers whom I do not know, write to me about the column.

A Videotape Method for Testing of Anatomy Course Material. MATTHEW KELTY, University of Notre Dame, Department of Biology, Notre Dame, Indiana 46556.——The introductory biology laboratory course (enrollment 400) at the University of Notre Dame includes a nine-hour sequence on vertebrate dissection. In the past, testing this material by both lab practical and photographic slides has been unsatisfactory from the aspects of excessive time and energy expended in the first case, and poor quality of the test material in the second. Since 1975, a television system of testing has been employed, using color videotape recording equipment. Videotapes were produced which showed and asked questions about the anatomy of a dissected specimen. This system was judged the most successful employed because 1.) the capability of zooming from a view of the entire organism to an extreme close-up of a specific structure and of moving the structure to show it from various camera angles make the tape far superior to color slides, and 2.) the capability of testing 80-100 students simultaneously is much more efficient than a lab practical test.

Utilizing Resource Individuals for TV Instruction in Biological Teaching Strategies. CHARLES L. GEHRING, Professor of Life Sciences, Indiana State University, Terre Haute, Indiana 47809.——The topic considered herein is restricted to utilizing resource individuals in the production of Instructional Television (ITV) programs. The new copyright laws make it difficult to use commercially prepared materials (films, video cassettes, etc.) in ITV. Fortunately, for the student, the copyright law does encourage the instructor to

develop materials and utilize individuals more appropriate to a specific course and/or region.

What are some of the criteria for selecting a resource individual? One, the individual must possess the expertise or skill which makes his/her participation worthwhile. Two, the individual must be a "willing", rather than a coerced, participant. Three, there must be sufficient visuals/graphics to eliminate the "talking face" syndrome. Prior to establishing these criteria, the author was involved in more than one bad ITV production. In terms of student disinterest, our worst production involved the panel discussion format, in which four experts from different ecological fields discussed environmental problems.

To date, our greatest success with resource individuals involved staff members from the Human Genetics Department (Indiana University School of Medicine). The criteria for selection were established, followed by months of planning, taping, editing, and compiling the finished product. Resource individuals do exist; however, one must proceed with a well-conceived plan to utilize their talents in ITV programs.

Bird Studies and Environmental Education. MARSHALL E. PARKS, Science Teaching Center, Indiana State University, Terre Haute, Indiana 47809.——The University Studies Program at Indiana State University is an alternative general education track for undergraduate students. "Man and His Environment" is a course designed to increase environmental understandings by emphasizing a systems approach to basic biophysical interrelationships. The study of birds in their natural environment is one unit incorporated in this course.

In this bird studies unit, the student learns to identify the common birds in the field and begins to perceive the nature of the relationships between organisms and their environments. The students utilizes field identification and special techniques, such as bird song recording using parabolic reflectors, and bird netting and scientific banding. However, the instructional emphasis is on the abiotic and biotic phenomena of birds in their natural environments.

Important concepts and principles presented in other units of the course are reiterated, developed in more detail and carefully integrated into the bird studies unit. If planned properly a bird studies unit has considerable potential as a vehicle for improving the college students' understanding of basic environmental principles which have general application to all ecosystems.

Development of spatial abilities in school age children. H. MARVIN BRATT, Science Education, The Ohio State University, Marion, Ohio 43302.——Tasks designed to engage the right and left hemispheres of the brain were given to school age children in an attempt to discover asymmetries in development. Of special concern were developmental differences in spatial recognition and conservation of space. For comparison, tasks which engage verbal abilities were also given. Twenty six school age children were randomly selected from a typical rural school and individually tested using the tasks.

The data from the study indicate that there are differences in hemisphere functioning in these school age children. Scores on tasks requiring right hemisphere function were significantly higher than scores on left hemisphere

tasks. With respect to age, there seem to be developmental differences in both right and left hemisphere abilities. The results tend to support the hypothesis (Gazziniga, 1970; Bratt and Haver, 1976; Hewitt, 1962; and Conel, 1959) that 1) the two hemispheres act independently during development, 2) that preadolescent children tend to use the right hemisphere more efficiently than the left, and 3) that children are more successful learners in environments containing objects and materials than in environments in which reading or verbal interaction is predominant.

Development and Implementation of a Bioethical Decision-Making Course at Ball State University. JON R. HENDRIX, Associate Professor Biology, Ball State University.——Students' confusion about contemporary bioethical problems, an author-conducted national survey of bioethics course, and a research background in values/morals education led the author to develop and implement a bioethical decision-making course at Ball State University, Muncie, Indiana. The major thrust of the course is the exploration of bioethical issues and the application of confluent, developmental value clarification teaching techniques to these issues. A four-step teaching model is employed:

1. *Sensitize* students to a particular problem;
2. *Analyze* the particular problem from as many points of view as possible;
3. *Synthesize* a personal stance to the problem and;
4. *Actualize* the stance if possible.

A contract grading system is employed having both core and optional activities. Small group discussions are also utilized to allow for examination of alternate views of peers. Hastings Center reading packets and extensive bibliographic materials were used as data bases for decision-making. Howard Brody's models in *Ethical Decisions in Medicine* were modified to include a value clarifying component and then utilized as the major mode of ethical decision-making.

Piaget and Geology. ROBERT B. VOTAW, Department of Geosciences, Indiana University Northwest, Gary Indiana.——Levels of thought processes and development of reasoning have been described by Piaget. Two of these levels exist among college students. Puzzles designed to assist in the recognition of these levels of thought processes have been administered to students enrolled in introductory earth science. Results show that half the students tested are functioning at a concrete level of reasoning, while most of the topics discussed in the course require a formal level of thought for mastery of the topic.

